Research on Policies to Support the Cultivation of Leading Enterprises in Agricultural Industrialization: Quantitative Analysis Based on 229 Provincial Policy Texts

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Abstract

Leading enterprises in agricultural industrialization are the new force leading the comprehensive revitalization of rural areas and the modernization of agriculture and rural areas. This study takes 229 provincial-level agricultural leading enterprise support policies as the research object, and deeply analyzes their policy layout characteristics and policy focus. Using the content analysis method, the quantitative standards of China's provincial agricultural leading enterprises support policies are constructed from the three dimensions of policy objectives, policy intensity and policy measures, and the quantitative support policy texts are quantified, and the research conclusions: (1) On the whole, the design of policy measures is clear and specific, but the accuracy of policy objectives is general, the policy of providing precise services to agricultural leading enterprises is insufficient, and the form of policy issuance is single and low. Total policy effectiveness: eastern> western> central, average policy effectiveness: central> eastern>western; (2) The eastern region is economically developed, and financial support should be increased as much as possible to help the development of agricultural leading enterprises; The central region should give play to the leading role of major agricultural provinces, carry out policy pilots, and encourage advanced enterprises to participate in policy formulation; The western region should give play to the advantages of characteristic industries and inject more energy into leading agricultural enterprises.

Key words: Leading enterprises of agricultural industrialization; Provincial policy; Policy quantification; Content analysis method

1. INTRODUCTION

Leading enterprises of agricultural industrialization are the "leading geese" in the development and expansion of rural industries, and the "vanguard" in promoting urban-rural integration and industrial integration. Leading enterprises in agricultural industrialization are the new force leading the all-round rural revitalization and agricultural and rural modernization, the backbone of building the whole agricultural industry chain and the modern rural industrial system, the important subject driving farmers' employment and income increase, and play an irreplaceable role in accelerating the all-round rural revitalization. Cultivating and supporting leading enterprises in agricultural industrialization plays a very important role in accelerating the development of agricultural modernization and comprehensively promoting rural revitalization. In May 2010, the Ministry of Agriculture and Agricultural Bank of China issued the Opinions on Supporting the Development of Leading Enterprises in Agricultural Industrialization, which clearly pointed out that agricultural industrialization departments and Agricultural Bank should implement strategic cooperation, increase financial support for leading enterprises, innovate financial products and service methods, and accelerate the development of agricultural industrialization. In March 2012, The State Council issued the Opinions on Supporting the Development of Leading Enterprises in

Agricultural Industrialization (hereinafter referred to as the latest Opinions), clearly putting forward a series of opinions on accelerating the development of agricultural industrialization management and making leading enterprises bigger and stronger. Agricultural NongCunBu attaches great importance to the development of leading enterprises, the ministry of agriculture and other eight ministries jointly issued the agricultural industrialization national key agricultural leading enterprises and operation monitoring management measures, since 2000 that 10 key leading enterprises have been completed 10 batch of leading enterprises and leading enterprises dynamic monitoring work, the standards involved enterprise business situation, industrialization, social responsibility, with high threshold, in order to ensure the leading enterprises sustained high quality development, adopt market elimination mechanism, the dynamic monitoring, monitoring of unqualified enterprises. Based on the new goals of rural revitalization and poverty alleviation in the new era, in order to implement the central No.1 document of the State Council in 2021, the Ministry in October 2021 again clarified the requirements for high-quality development of leading enterprises, explore the level of leading enterprises; build a number of "head" enterprises; emphasize that the departments should strengthen the guarantee and optimize the development environment of leading enterprises. Under the call of the CPC Central Committee and various ministries and commissions, all provinces (autonomous regions, municipalities directly under the Central Government) and the Xinjiang Military Engineering Corps have also issued policies to support the leading enterprises in agricultural industrialization bigger and stronger. Some responded quickly, brave when the tide, some bold innovation, and some slowly map, it can be said that a hundred flowers bloom. With a series of strong policy support, the leading enterprises of agricultural industrialization in China have developed rapidly (Zhang, et al., 2021).

Although cultivating and supporting leading enterprises in agricultural industrialization is of great significance to promoting agricultural modernization and rural revitalization, But the actual situation is that the policy support effect is not good, Even restricting the development of leading enterprises, Policy support is an external condition for enterprises to actively fulfill their social responsibilities, But the internal drive is the motivation for the leading enterprises to continuously fulfill their social responsibilities, Leading enterprises of agricultural industrialization are lack of vitality, Lack of innovation, Policy support effect is not significant and other problems have been difficult to effectively solve, The effect of the policy support is not obvious, There are a number of reasons why, But whether the policy-making is appropriate, Is the service mechanism innovative? The adequacy of the support is the most important factor,

Related to the development environment of leading enterprises, This also reflects that the imperfect design of agricultural cultivation support policies, the lack of overall coordination of various departments, the imperfect incentive and guarantee mechanism and other problem policies need to be further optimized and adjusted.

Accordingly, it is of great significance to analyze the introduction of high-quality development support policies of provincial leading agricultural enterprises, and to understand the situation of policy layout and focus to optimize the development environment of leading enterprises and solve the development obstacles. This paper sorts out the support policies of leading enterprises in agricultural industrialization in 2011-2022, uses the content analysis method to quantitatively evaluate 229 support policies, establishes the quantitative standard of support policies of leading agricultural enterprises, quantify the policy text, and provide suggestions for the formulation of the latest support policies in various regions accordingly.

2. LITERATURE REVIEW

2.1 Research Progress in Support Policies for Leading Agricultural Enterprises

In response to the policy of optimizing the development environment of agricultural leading enterprises and cultivating a group of high-quality leading enterprises, the academic circles also expressed their opinions to find new development directions of the agricultural leading enterprises under The background (Zhang Yanlong et al., 2021); Jiang Huicheng et al. (2021) proposed optimization suggestions based on the problems and weak links of the support policies of agricultural leading enterprises in China.

At present, the supporting policies of leading enterprises in agricultural industrialization of the government involve finance, finance, talent, science and technology, taxation and other aspects. Most of the research at home and abroad studies the performance and output of leading agricultural enterprises for supporting policies. Some scholars to evaluate the existing relevant supporting policies, such as Jiang Yunchang (2019) found that national support for agricultural leading enterprises show weak growth, policy support for guidance, encouraging content, operational, landing policy, in financial support, project construction, land security, water and electricity preferential is often "big thunder, small rain, slogan, less affordable". Lin Wanlong (2004) found that the Chinese government's support policies for leading enterprises in agricultural industrialization were inefficient, and the government support did not bring the desired growth effect, and the driving effect was not obvious. This means that there are still many problems and weak links in the current leading enterprise support

policy of agricultural industrialization. Other scholars have conducted a lot of research on the effect of financial support, fiscal taxation, trade, science and technology and other policies formulated by the government. Zhao Hai (2012) believes that fiscal and tax support policies promote the development of leading enterprises in agricultural industrialization to some extent, but are limited; Xu Lin (2013), based on various supporting policies of leading agricultural support enterprises from the performance of leading enterprises. However, the actual effect of support policies and policy objectives do not priority the improvement of farmers' performance. The utility of different types of support policies is also different. Zhang Minglin (2016) found that the specialized green product support policies are conducive to improving the green intensity of leading green food and agricultural enterprises, but the universal support policies such as loan discount interest policies and tax exemption cannot improve their green intensity. In addition, many scholars have put forward more specific supporting policies and measures based on the research results. For example, Chi Zexin et al. (2022) studied the specific supporting policies, found the problems, and suggested that the self-generating ability of enterprises should be included in the identification and monitoring index system of leading agricultural enterprises as an important investigation index.

2.2 Research on Policy Quantitative Evaluation

About the quantitative analysis of the policy, most scholars to carry out quantitative research on the results of the policy, but for the evaluation of policy implementation effect is not easy, research on policy evaluation is the qualitative judgment of policy effect, the summary of policy problems, etc., the methodology of policy quantitative evaluation research is less, in the policy evaluation, scientific quantification of policy text is the key is also a big difficulty. On the quantitative research of policies, the earliest exploration is Liekap (1978), the first quantified policies into a legal change index, and the effect of mining law in the United States; Chinese scholars actively absorb foreign advanced research methods and results, policy quantitative evaluation of China's policies. Peng Jisheng et al. (2008) studied the technical innovation policies issued by the Central Committee and ministries, and formulated the policy quantitative standard operation manual from the three dimensions of policy strength, policy objectives and policy measures. Hua Chunlin et al. (2022) formulated the corresponding policy quantitative standard through text quantitative evaluation of the agricultural non-point source pollution control policy and policy evolution characteristic analysis. Guo Qiang et al. (2020) adopted PMC index model for policy quantification. First, with the help of text mining software to extract keywords from the text of agricultural and rural science and technology service policy, select

9 first-level variables and 32 second-level variables to construct the policy measurement standard of agricultural and rural science and technology service policies. Mao Shiping (2019) rated the policy strength, target strength and measures; Zhang Yongan (2017) established regional technology innovation policy evaluation index system and evaluated the policy using TOPSIS model; Zhao Lixiang (2018) constructed PMC index model to evaluate carbon emission reduction policy.

The difficulty of policy evaluation lies in how to scientifically quantify the policy itself, which makes a series of explorations, but the research conclusions have their own characteristics, different policy types, inconsistent quantitative standards, and different choices of quantitative methods, leading to its conclusions are not universal. Combined with the quantitative methods of different scholars, the quantification of policies needs to design an evaluation model commensurate with the specific policy characteristics. Agricultural industrialization leading enterprises support policy is relatively detailed, relatively less research, supportive policy its policy guidance is strong, binding is relatively weak, its policy characteristics need more specific and detailed, simple analysis of the policy surface does not understand the design of the specific policy, its objective and specificity and strength, need further quantitative analysis to understand. This study takes the supporting policies on leading enterprises issued by the provinces (autonomous regions, municipalities directly under the Central Government) and the Xinjiang Military Engineering Corps as the research object, and quantitatively evaluates the 229 policies through the text quantitative method, which provides a basis for the central government to implement the Opinions and provides ideas for the adjustment of the latest policies in various regions.

3. CURRENT SITUATION OF CULTIVATION AND SUPPORT POLICIES FOR LEADING AGRICULTURAL ENTERPRISES IN VARIOUS PROVINCES

3.1 Layout of Supporting Policies for Cultivating Leading Agricultural Enterprises

National 31 provinces (autonomous regions and municipalities directly under the central government) and Xinjiang work corps, issued 229 about supporting leading enterprises of agricultural industrialization policy, policy content involves finance, taxation, finance, talent, policy data from agricultural NongCunBu rural industry development department released in May 2022 of the provinces (autonomous regions and municipalities) the agricultural industrialization leading enterprises support policy list, has a certain authority.
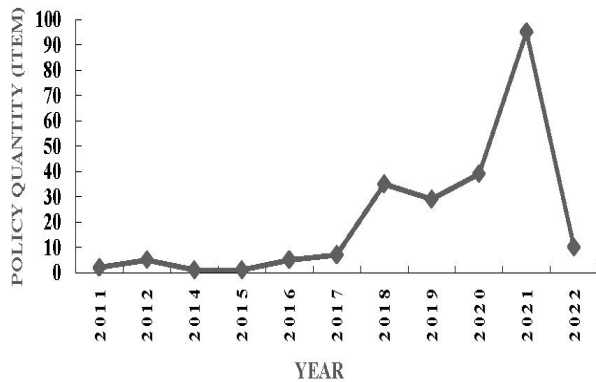
Figure 1
Trend chart of the number of support policies for agricultural leading enterprises from 2011 to 2022

The release time of relevant supporting policies in various regions is closely related to the release time of the central government policies. Local governments responded quickly to the central instructions, and the overall number of supporting policies showed a rising trend of phased fluctuations. There was a rapid growth after the rural revitalization strategy of the 19th CPC National Congress and the introduction of the latest Opinions in 2020. Few policy documents were issued before 2018, and the number of supporting policies increased rapidly after 2018. In 2018, the number of supporting policies in each regions increased to 35, related to the rural revitalization strategy proposed by the 19th National Congress of the Communist Party of China, and all regions have carried out agricultural industrialization to boost rural revitalization. In 2021, there were 90 supporting policies

issued, and some policies increased in the first half of 2022. As the latest policy statistics are in May 2022, which is related to the Ministry of Agriculture and Rural Affairs attaches great importance to the development of leading enterprises in agricultural industrialization and issued the latest "Opinions on High-quality Development of Agricultural Leading Enterprises" in 2021. This shows that the importance of provinces to leading enterprises is closely related to the call of the central government. The correct and scientific policy formulation is conducive to the active implementation and promotion of the development of leading enterprises, strengthening the guarantee and optimizing the development environment of leading enterprises.

The earliest supporting policy for leading enterprises is the Implementation Opinions of The General Office of Fujian Provincial People's Government on Further Promoting the Listing of Leading Enterprises in Agricultural Industrialization ", issued by Fujian Province in 2011, The following year, Jiangsu also issued the Implementation Opinions of the Provincial Government General Office on Further Supporting the Development of Leading Enterprises in Agricultural Industrialization, Subsequently, Beijing, Heilongjiang, Henan and Sichuan provinces first introduced relevant support policies in 2016, Shandong and Xinjiang first introduced relevant supporting policies in 2017, Among them, Fujian province has issued relevant policies to support leading agricultural industrialization enterprises for 6 years, At the forefront of the provinces, To make great contributions to promoting the cultivation and development of leading enterprises in China, As an exemplary and leading role, Support policies have increased from 2019 to 2020.

Table 1
Number of support policies for leading agricultural enterprises in each province

Province	The number of policies	Province	The number of policies	Province	The number of policies	Province	The number of policies
Beijing	1	Hubei	5	Shanghai	4	Yunnan	6
Tianjin	2	Hunan	7	Jiangsu	8	Xizang	2
Hebei	4	Guangdong	5	Zhejiang	7	Shanxi Province	2
Shanxi	10	Guangxi	5	Anhui	5	Gansu	4
Nei Monggol	8	Hainan	3	Fujian	40	Qinghai	4
Liaoning	3	Chongqing	6	Jiangxi	11	Ningxia	7
Jilin	9	Sichuan	5	Shandong	9	Xinjiang	18
The Heilongjiang River	4	Guizhou	7	Henan	11	Xinjiang corps	7

31 The provinces (autonomous regions, municipalities directly under the Central Government) and the Xinjiang Military Engineering Corps have actively responded to the central policy and issued a series of policies to promote agricultural industrialization and cultivate and support a number of high-quality leading enterprises. In terms of the

number of policies, Fujian province topped the list, from 2011,40 supporting policies have been issued, followed by Xinjiang and Xinjiang Military Engineering Corps, then Jiangxi, Henan issued 11, Shanxi issued 10, and the number of supporting policies in other provinces is less than 10.

3.2 Focus of Supporting Policies for Cultivating Leading Agricultural Enterprises in Various Provinces

Agricultural NongCunBu in 2021 in the ministry of promoting agricultural industrialization leading enterprises bigger and stronger opinions, clearly put forward to strengthen security, optimize the environment of leading enterprise development, and from strengthening policy, innovative financial services, strengthen talent training, strengthen the typical propaganda, perfect guidance, and service and so on five aspects put forward more clear opinions."Opinions" is combined with the actual situation of agricultural industrialization enterprise development in recent years and rural revitalization of the new goal of directional policy, the purpose is based on the new era background, guide the provinces to develop bigger and stronger agricultural industrialization leading enterprises this important work, its limitation is that the scope of larger, the target concrete and weak measures clarity, so the implementation and implementation of "opinions" need to further study and absorb the central opinions, and adjust measures to local conditions to formulate specific support policy, guide local to develop the corresponding activities.

The support direction is highly unified. Through intensive reading the central and provincial policy 229 text found that the provinces to carry out agricultural leading enterprises to support work mainly around the support agricultural leading enterprises themselves bigger and stronger to achieve high quality development, support agricultural leading enterprises actively promote agricultural industrialization development industry poverty alleviation, support agricultural leading enterprises to realize three big direction.

3.2.1 Support the High-Quality Development of Leading Agricultural Industrialization Enterprises

Provincial governments and departments to actively cultivate a number of high-quality agricultural leading enterprises, Enhance its demonstration and leading role, Subsidies to leading agricultural enterprises in construction projects such as independent innovation capacity and transformation of scientific and technological achievements, Encourage independent research and development of new varieties and innovative industrial models, Set up a scientific and technological research and development and innovation platform; To apply for the recognition of national and provincial backbone agricultural leading enterprises in agricultural industrialization, Financial incentives; To subsidize the loan interest in the acquisition, processing, warehousing and logistics of agricultural products; Supporting financial institutions in developing and developing credit products around the agricultural industry chain, Support the development of leading enterprises in agricultural industrialization; Encourage enterprises to strengthen brand building, Cultivate agricultural enterprises to go public, Enhance your own scale; Also from the priority of land protection and preferential tax, hydropower costs and other aspects to ensure a good development environment of leading agricultural enterprises.

3.2.2 Encourage Leading Agricultural Enterprises to Participate in Industrial Poverty Alleviation and the Formation Of Industrial Consortia

We will support leading chain enterprises in participating in the construction of strong agricultural industry towns, modern agricultural industrial parks, and competitive and characteristic industrial clusters. We will encourage leading agricultural enterprises to make breakthroughs in a number of cutting-edge leading technologies and core and key technologies, drive the industrial chain to the high end of the value chain, guide leading agricultural enterprises to participate in rural revitalization, participate in industrial poverty alleviation, and form agricultural confederations to achieve common development. We will support the development of leading enterprises and associations in agricultural industrialization, extend the agricultural industrial chain, and increase the added value of agricultural products. Through preferential tax policies, priority will be given to the construction land needed by leading enterprises leading the development of agricultural industrialization consortium, with priority in examination and approval, and discount interest support will be given for loans to leading enterprises with obvious poverty alleviation effect.

3.2.3 Support Leading Agricultural Enterprises in Giving Full Play to Their Advantages in Connecting With Agriculture

Awards and subsidies will be given to leading agricultural enterprises that provide peasant household services such as surrogate farming, planting, collection and prevention, recruit migrant workers, and provide various social services such as information and technology. Leading agricultural enterprises with outstanding economic and social benefits and great tax contributions will be rewarded. Enterprises that have obvious effect in promoting poor households to develop industries or absorbing long-term employment can give production development awards and subsidies by integrating agriculture-related funds. We will encourage leading enterprises to play a leading role, and establish and improve the interest connection mechanism of various large-scale business entities and farmers in modern agricultural parks.

Table 2
Category of Supporting Policies

Policy category	Financial awards and subsidies	Financial support	Land security	Tax reduction and exemption	Policy guidance	Hydropower preferential class
Policy number	131	26	23	14	28	7
Proportion	57.20%	11.35%	10.04%	6.11%	12.23%	3.06%

The support side focus is different. The supporting policy texts of relevant local leading enterprises involve six categories: financial awards and subsidies, financial support, land use guarantee, tax reduction and exemption, preferential hydropower treatment, and policy guidance. It can be learned from Table 1 that the provinces adopt different support policies, which may be related to the actual development of local leading enterprises. The most adopted support policies are financial awards and subsidies, accounting for 57.2% of all policy types, which is preferred for local governments. It is relatively mature and reliable; Secondly, 12.23% is still in the guidance and exploration stage, or guiding policies and other types of support policies to strengthen the policy strength.

Financial support and land security support policies both account for about 10%, and the proportion of use is not high, which is an active exploration of past experience and new support models, and the proportion of tax reduction and hydropower preference categories is relatively low.

In addition, the priority categories differ in the eastern, central and western regions, with the eastern regions giving higher priority in financial awards and subsidies and hydropower support, the central region in financial awards and subsidy and land guarantee policies, and the western regions in financial subsidies and policy guidance over other categories, which is closely related to the development level of leading agricultural enterprises in various regions.
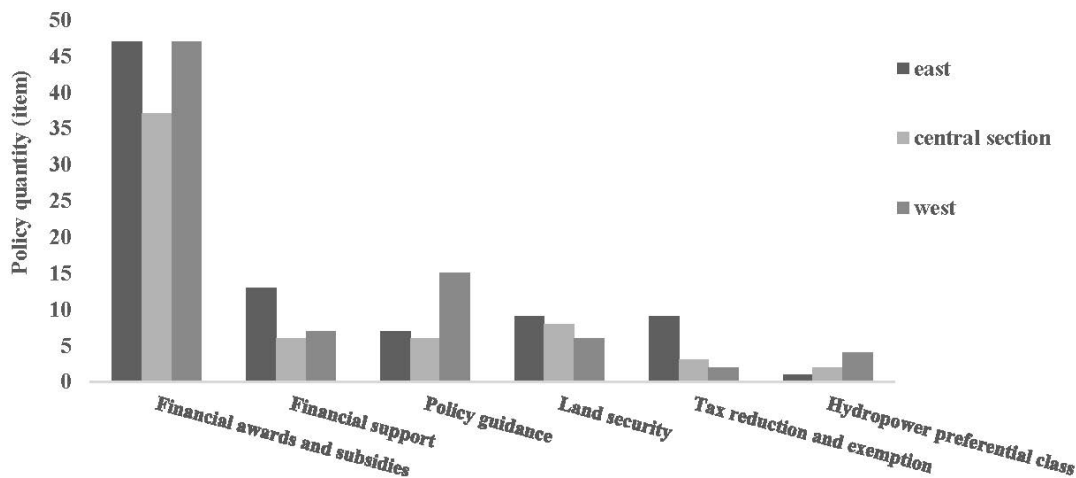

Figure 2
Policy categories for cultivating leading agricultural enterprises in eastern, central and western China

4. QUANTITATIVE ANALYSIS OF SUPPORT POLICIES FOR PROVINCIAL AGRICULTURAL LEADING ENTERPRISES

4.1 Quantitative Indicators and Standards of the Support Policy Text for Leading Agricultural Enterprises

In order to make the content of the support policy more comprehensive and strict reflection, the reference of this study Peng Jisheng (2008), Guo Qiang (2020), Cheng Xiang (2018), HuaChunLin (2022) scholars quantitative method of policy text, and combined with the characteristics of the leading enterprise support policy and agriculture, the latest opinions released in 2021, from the policy strength, policy objectives, policy measures, detailed classification, respectively: fiscal tax measures, financial support measures, other policy measures, and formulate quantitative standards, quantitative score, respectively. The specific assignment method is as follows.

Policy strength. As for the assignment of the policy strength, according to the comprehensive evaluation of the policy release subject and the policy release form, the higher the level of the policy release subject, the higher the requirements of the policy form, and the greater the policy strength. Since the policy of this study is local policy, 5 points of provincial government> provincial level department> county level government> county level department; 4 points of regulations and normative documents issued by government and departments; regulations and regulations, opinions, approval, measures and interim provisions of government and departments, and 1 points.

Policy objectives. Based on the characteristics of the policy type, this study involves 229 policies are agricultural leading enterprises support policy, should the call of agricultural NongCunBu, by the rural industry development department collected the provincial support policy "list", the purpose is to guide the provincial learning and reference the latest policy, better for agricultural leading enterprises to provide more accurate service, especially to improve the relevant policy

making. Therefore, this study for the quantitative policy objectives according to the agricultural industrialization leading enterprises support policy goal is clear, whether will support the development of agricultural leading enterprises as the main goal of the policy release, with the support policy support object whether to agricultural leading enterprises as the main goal, whether accurate to the agricultural leading enterprises. The specific assignment standard is: the support object is the agricultural leading enterprise of a specific type and characteristic industry, With a qualifier in front of the leading agricultural enterprises, Including but not limited to "innovative agricultural leading enterprises, agriculture and animal husbandry agricultural leading enterprises, dairy agricultural leading enterprises, poverty alleviation agricultural leading enterprises", Give it 5 points; The support object clearly mentioned that "agricultural leading enterprises" includes "provincial (municipal) agricultural leading enterprises" and is the only support object, With 4 points: the support object explicitly mentions agricultural leading enterprises but not only, Other main bodies are also included, Such as "agricultural leading enterprises and consortium", With 3 points, The object of support is not clear is the agricultural leading enterprises, Instead, it is included under the agricultural industrialization consortium, the new agricultural business subject, and the agricultural business subject, The value is assigned to 2; The object of support only mention agricultural products processing enterprises, high R & D investment enterprises, agricultural enterprises, One point is assigned.

Policy measure. Policy measures are the specific methods and means adopted to achieve the policy objectives. According to the content of the text, this paper divides the policy measures into financial support measures, financial award and subsidy measures, and other economic measures, and scores them through the accuracy and clarity of various types of measures. Needle policies and measures include different types of provincial support policies of leading enterprises of agricultural industrialization, which have the diversity and characteristics of measures. The support policies of leading agricultural enterprises involve six categories, namely, financial support, financial subsidies, tax reduction, hydropower preferential treatment, land security and policy guidance. This study draws on the classification criteria of policies and measures such as Cheng Xiang (2018), Combined with the results of the keyword extraction of the policy text, Further set up secondary indicators: fiscal and tax measures, financial support measures, other policies and measures, The main contents of each secondary policy measures are: fiscal and tax measures include project construction, loan discount interest, demonstration construction, listing cultivation, tax reduction and other specific measures; Financial support policies mainly involve credit loans, mortgage pledge, financial lease, guarantee fees, bond financing and other specific measures; Other policies involve enterprise guidance, land use guarantee, preferential water and electricity and other measures, The score is quantified according to the clarity of various policies and the specificity of measures.

In order to ensure the scientific nature of the policy quantification standards, the content validity and reliability of the research method in this paper meet the requirements of statistical specifications. Group invited three agricultural economic researchers (university teachers), two policy researchers, four team members of evaluation team, according to the policy content of policy division and policy objectives, policy, policy measures of the panel discussion and modification, after several rounds of discussion and modification, finally determined the agricultural leading enterprises high quality development support policy quantitative standard is as follows. The 229 policies were then scored according to the standard, and the group members were scored freely, and the mean of the score of each group member was taken as the score result of each policy.

Table 3
Quantitative standards for support policies for leading Agricultural Enterprises

Level 1 indicators	Secondary indicators	Score	Judgment criteria
Policy strength		5	Provincial, municipal and other local laws and regulations
		4	Rules and normative documents issued by the government and various departments
		3	Regulations and regulations promulgated by the government and various departments
		2	Opinions, approvals, measures and interim provisions of the government and various departments
		1	Notice from the government and various departments
Policy objectives		5	Clearly support a specific type and characteristics of the industry of agricultural leading enterprises, and as the only object of support
		4	Clearly mentioned "agricultural leading enterprises" includes provincial (municipal), and is the only support object
		3	Clear mention of agricultural leading enterprises but not only, but also include other subjects
		2	Did not explicitly mention agricultural leading enterprises, but included in the agricultural industrialization consortium and other main body
		1	Only the mention of agricultural products processing enterprises, high research and development investment enterprises, agricultural enterprises and other main body

Continued

Level 1 indicators	Secondary indicators		Score	Judgment criteria
policy measure	fiscal levy	project construction	5	List specific measures and detail the implementation standards, with the appropriate support amount, proportion, or priority
		Loan discount interest	4	List the specific measures, and have certain instructions for the implementation standards
		Demonstration construction	3	List the more basic measures, and briefly explain the implementation standards
		Listed cultivation	2	List the basic measures, without explaining the implementation standards
		Tax reduction	1	Only from the macro perspective of the relevant content, did not mention the specific financial award and subsidy measures
	Financial support	character loan	5	List the specific measures, and detail the implementation standards, with the corresponding amount and proportion of support
		finance lease	4	List the specific measures, and have certain instructions for the implementation standards
		Mortgage pledge	3	List the more basic measures, and briefly explain the implementation standards
		security cost	2	List the basic measures, without explaining the implementation standards
		debt financing	1	Only from the macro perspective of the relevant content, did not mention the specific financial support measures
	Other policies		5	List the specific measures, and detail the implementation standards, with the corresponding amount and proportion of support
		Hydropower discount	4	List the specific measures, and have certain instructions for the implementation standards
		Land security	3	List the more basic measures, and briefly explain the implementation standards
		Enterprise guidance	2	List the basic measures, without explaining the implementation standards
			1	Only from the macro perspective of the relevant content, did not mention the specific measures

4.2 Policy Quantification Method

According to the quantitative standards in Table 3, after the policy intensity, policy objectives and policy measures of the 229 support policies included in the research sample are quantified respectively, formula (1) The cumulative scores of the indicators of each year are added to calculate the single annual score of the support policies of agricultural leading enterprises:

$$Z_i = \sum_{j=1}^{n}(G_j + M_j)P_J \tag{1}$$

$$g = \frac{\sum_{i=1}^{n}G_j}{n} \qquad m = \frac{\sum_{i=1}^{n}M_j}{n} \qquad p = \frac{\sum_{i=1}^{n}P_j}{n} \tag{2}$$

$$z = \frac{\sum_{i=1}^{n}(G_j + M_j)P_j}{n} \tag{3}$$

Where i represents the year of release of the policy, i = (2011, 2022), n represents the number of policies promulgated in the ith year, j represents the jth policy of the ith year, and G_j represents the policy goal score of the jth policy; M_j represents the score of the policy measure for policy item j; P_j indicates the policy strength score for policy j; Z_i represents the comprehensive score of the support policy for agricultural leading enterprises in the ith year. g, m, p, z represent the average of the policy objectives, policy measures, policy strength, and total effectiveness of each policy text, respectively.

4.3 Quantification Results and Analysis

According to the classification methods of the National Bureau of Statistics, the 31 provinces were divided into eastern, central and western regions. The eastern part includes 11 provinces of Beijing, Tianjin, Hebei, Liaoning, Shandong, Shanghai, Jiangsu, Zhejiang, Fujian, Guangdong and Hainan; the central part includes 8 provinces: Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei and Hunan; and the western part includes 12 provinces of Inner Mongolia, Chongqing, Sichuan, Guizhou, Yunnan, Guangxi, Tibet, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang. Among the policies related to support the high-quality development of leading agricultural enterprises, 86 were issued in the east, followed by the west, 81, and only 62 in the central region. It shows that the east and west pay more attention to the development of the agricultural leading enterprises, which is also related to China's agricultural layout. According to the score of each policy, the final quantitative results are calculated through the formula, and the policy comprehensive policy score, policy target score, policy strength score and score of policy measures are summarized and summarized in the following table.

Table 4
Quantitative score results of support policies for leading agricultural enterprises from 2011 to 2022

The year of the release	Comprehensive policy score			The number of policies			Policy objectives			policy measure			Policy strength		
	east	central section	west	east	central section	west	east	central section	west	east	central section	west	east	central section	west
2011	68	0	0	2	0	0	10	0	0	6	0	0	4	0	0
2012	32	0	0	5	0	0	21	0	0	18	0	0	9	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	16	0	0	1	0	0	5	0	0	3	0	0	2	0	0
2015	5	0	0	1	0	0	1	0	0	4	0	0	1	0	0
2016	14	28	7	2	2	1	5	6	5	9	8	2	2	4	1
2017	29	11	15	3	2	2	7	3	2	12	4	8	5	3	3
2018	164	117	68	16	11	8	36	23	13	55	49	21	29	18	16
2019	173	92	94	11	11	7	40	42	17	41	45	26	24	12	15
2020	82	65	196	7	6	26	18	15	62	28	21	88	11	11	35
2021	282	333	336	36	30	29	106	100	87	123	114	105	44	46	52
2022	22	-	72	2	-	8	6	-	30	5	-	30	4	-	10

As can be seen from the quantitative results, the east is the first in agricultural leading enterprises support policy issued area, and the western and central to 2016 to support policies, the overall policy measures score higher, followed by policy objectives, finally, policy strength, it also shows that the current support for agricultural leading enterprises is not enough, only involves financial subsidies, financial support and other economic incentive policy tools, for strong safeguards need to be improved. From the perspective of the timeline, 2018 to 2021 is the most concentrated four years for the introduction of leading agricultural enterprises to support policies, which is related to the central government attaches great importance to the development of agricultural leading enterprises. From the comprehensive score, the eastern> western> central regions, although the central and western regions developed late, but the central and western policies in recent years showed a continuous rising trend in number and intensity, especially the west in 2020,2021 scored as high as 196,336 points, ahead of the east and western regions.

Table 5
East, Central and Western Policy scores

Area	The number of policies	Total effectiveness of policy	The average effectiveness	Policy objectives	Policy measure	Policy strength
East	86	887	10.31	255	304	135
Central section	62	644	10.39	189	241	94
West	81	788	9.73	216	280	132

Policy quantity on the one hand can reflect the importance of around, but the number of policy differences, the number of the east and the west, but the policy quantity is not enough to measure a region to support the local agricultural leading enterprises, from the policy objectives, policy measures, policy strength to reflect the overall effectiveness of the provincial government support for agricultural leading enterprises in the province, the policy text support object, the more accurate, the more specific measures, the more clear the goal, the greater the enforceability and effectiveness of policy. From Table 5, we can find that despite the small number of policies issued in the middle, the average quality of policies is high, scoring higher for each policy than in the eastern and western regions.
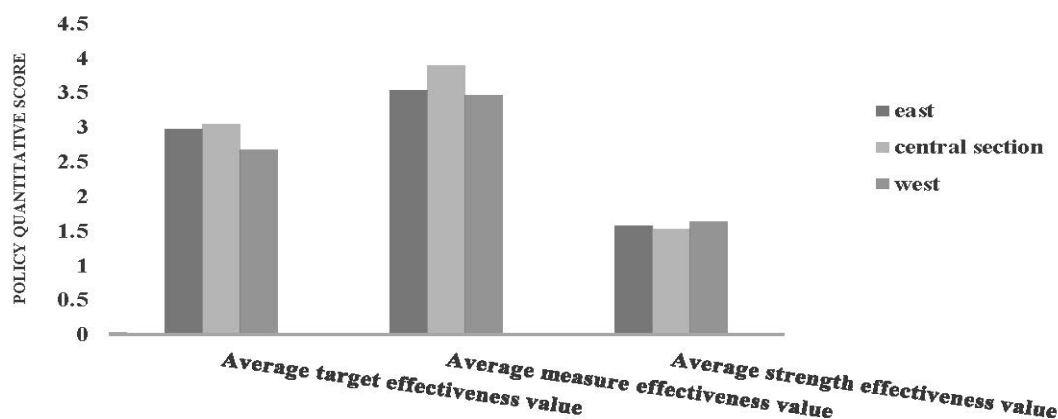

Figure 3
Average effectiveness of East, Central and Western policies

It can be found from Figure 3 that on the whole, the supporting policies of the eastern, central and western regions are relatively clear and specific, but the accuracy of the target is general, and the policies of providing accurate services for leading agricultural enterprises are insufficient. At the same time, the release subject of the policy is relatively single, the single form and the intensity is low. From the perspective of the precision of policy objectives and the specificity and detail of policy measures, the central situation is better than the east and the east and the west, mainly in notice, opinions, planning, plans, measures, etc., low policy strength, which is also the reason why leading agricultural enterprises support leading agricultural enterprises have no strict enforcement measures and standards, weak mandatory. In order to analyze the advantages and disadvantages of support policies in different regions of China and help them find the right direction in the latest policy adjustment, the central region has better the precise support of policy objectives and the specific degree of policy measures, but the policy strength is slightly lower, which can need to be strengthened. The western region pays more attention to the policy strength, the policy objectives are relatively scattered, and the precise service of leading agricultural enterprises needs attention. The overall policy level in the eastern region is relatively high, and the policy objectives, measures and intensity are all in the middle level. It pays more attention to the number of policies and innovative policy exploration, which is an important demonstration area.

5. RESEARCH CONCLUSIONS AND POLICY RECOMMENDATIONS

5.1 Study Conclusion

No policy formulation and implementation is a matter of doing it once and for all, and it should be constantly adjusted dynamically. Therefore, the scoring result should not be simply be regarded as the evaluation criterion for the quality of the policy, but the scoring result should be taken as the basis for finding the weak links and weaknesses of the current policy, and finally optimize the design of the policy.

（1）All provinces responded well to the instructions of the latest Opinions of the Central Government, and began to lay out supporting policies in their respective regions. From the number of policy issued, the eastern and western regions are more numerous than the central regions; from the single provinces, Fujian, Xinjiang, Jiangxi, Henan, Shanxi are the provinces with more relevant support policies for leading agricultural enterprises;

（2）From the perspective of the support direction, the provinces mainly focus on the high-quality development of agricultural leading enterprises, driving the industrialization development, and strengthening the joint agriculture belt and agriculture to carry out the cultivation and support work. The categories of provincial support policies are mainly financial awards and subsidies, financial support, tax relief and exemption. Meanwhile, policy guidance, land use guarantee, water and electricity incentives and other methods have also begun to be adopted by some provinces.

（3）According to the quantitative scoring results, it is found that on the whole, the design of policy measures is clear and specific, but the accuracy of policy objectives is general, and the policy of providing accurate services to leading agricultural enterprises is insufficient. At the same time, the release body of the policy is relatively single, the release form is single, and the intensity is low. By region, total policy effect: eastern> western> central, average policy effect: central> east> western; central, in the policy target of accurate policy support and specific policy measures is good, but the policy strength is slightly lower, the western region pay more attention to the policy strength, policy goal is scattered, pay attention to the precise service to agricultural leading enterprises. The overall policy level in the eastern region is relatively high, and the policy objectives, measures and intensity are all in the middle level. It pays more attention to the number of policies and innovative policy exploration, which is an important demonstration area.

5.2 Policy Recommendations

5.2.1 We Will Strengthen Policy Support for Leading Agricultural Enterprises

The current supporting policies for leading agricultural enterprises, There are a series of problems, such as weak standardization, low level of policy release, and inaccurate policy objectives, This is related to the current agricultural leading enterprise support work is still in the early promotion and guidance stage, But in order to continue to implement the supportive policies, We should start with the policy, Increasing attention, Increase policy efforts, The form of policy release only depends on opinions, notices and other weak standard forms is not enough to promote the high-quality development of leading agricultural enterprises, The actual effect of the policy is not obvious, It can be optimized from the aspects of more reasonable policy layout, specific, detailed and standardized policies and measures, Encourage local governments to introduce standards for support for industries and leading agricultural enterprises, Provide more accurate services for leading agricultural enterprises, Optimize its development environment.

5.2.2 We Will Give Full Play to The Exemplary and Guiding Role in Key Areas

The development of leading agricultural enterprises in various provinces in China is different. Some regions attach great importance to the support of leading agricultural enterprises and achieve good results. At this time, regions should play a leading role, encourage

provinces to exchange and study on policies, and provide new ideas and possibilities for the adjustment of provincial policies. The eastern region has relatively developed economy, which can innovate financial service mode and increase financial support to help the development of agricultural leading enterprises. The central region should conduct pilot experiments on feasibility and effect of policy measures, and encourage advanced and demonstration agricultural leading enterprises to participate in policy development and discussion, adjust measures to industrial integration policies and poverty alleviation policies, and encourage diversity to inject more energy into the agricultural leading enterprises.

REFERENCES

Cheng, X., Bao, X. Z., Zhang, R., & Shen, X. Y. (2018). An analysis of the effectiveness of science and technology finance policies in Beijing-Tianjin-Hebei region based on policy quantification. *Science and Technology Management Research, 38*(20), 62-68.

Chi Z. X, Peng, L. L., Wang, C. S., & Zhao, J. J. (2022). Self-viability of agricultural leading enterprises: Importance, evaluation ideas and policy suggestions. *Issues of Agricultural Economy*, (03), 136-144.

Guo, Q., & Liu, D. M. (2020). Quantitative evaluation of China's agricultural and rural science and technology service policies. *China Science and Technology Forum*, (08), 148-158.

Hua, C. L., Zhang, J. H., & Jin, S. Q. (2022). Analysis on evolution characteristics of agricultural non-point source pollution control policies in China based on text quantification. *Scientia Agricultura Sinica, 55*(07), 1385-1398.

Huang, C., Ren, T., & Zhang, J. (2015). Quantitative research of policy literature: A new direction of public policy research. *Journal of Public Administration, 12*(02), 129-137+158-159.

Ji, C. F., & Wu, Q. (2015). Research on efficiency evaluation of urban land intensive use policy based on policy quantification: A case study of Nanjing City. *Resources Science, 37*(11), 2193-2201.

Jiang, C. y., Zhang, Y. B., Lu, Q. W. (2019). Current development situation of leading enterprises in agricultural Industrialization and relevant suggestions: Based on the investigation of C City in Anhui Province. *Globalization*, (06), 85-97+136.

Jiang, H. C., & Jiang, C. Y. (2021). Research on optimization of supporting policies of leading enterprises in agricultural Industrialization. *Economic Review*, (04), 87-94.

Libecap, G. D. (1978). Economic variables and the development of the law: the case of Western mineral rights. *Journal of Economic History*, 338-362.

Lin, W. L., & Zhang, L. Q. (2004). Government fiscal and tax subsidy Policy Efficiency of Leading enterprises in agricultural industrialization: Based on the case study of listed agricultural companies. *Chinese Rural Economy*, (10), 33-40.

Mao, S. P., & Yang, Y. L. (2019). Evolution and effect evaluation of Chinese agricultural science and technology innovation policy since reform and opening up: Empirical evidence from Chinese agricultural research institutions. *Issues of Agricultural Economy*, (01), 73-85.

Peng, J. S., Zhong, W. G., & Sun, W. X. (2008). Policy measurement, policy synergy evolution and Economic Performance: An Empirical study based on innovation policy. *Management World*, (9), 25-36.

Wang, B., & Zhu, R. (2019). Effectiveness and effect evaluation of industry-university-research collaborative innovation policy: a quantitative analysis based on China's policy texts from 2006 to 2016. *Journal of Soft Science, 33*(03), 30-35+44.

Xu, L., & Chi, Z. X. (2013). The effect of policy support on the behavior performance of leading agricultural enterprises in Jiangxi Province: from the perspective of farmers, enterprises and government. *Journal of Jiangxi Agricultural University (Social Sciences Edition), 12*(04), 465-471.

Xu, X. G., Zhang, Z. X., & Zheng, W. W. (2017). Current situation, problems and countermeasures of transformation and upgrading of leading enterprises in agricultural industrialization. *Jiangsu Journal of Agricultural Sciences, 33*(04), 951-957.

Zhang, M. L. (2016). Research on the effect of supporting policies on the intensity of green food development in leading agricultural enterprises -- also on the motivation of green food development in leading agricultural enterprises. *Business Economics Research*, (22), 165-168.

Zhang, Y. A., & Ma, Y. (2017). Research on regional technology innovation policy Evaluation based on entropy weight TOPSIS method. *Science and Technology Management Research, 37*(06), 92-97.

Zhang, Y. L., Wang, M. Z., Qian, J. F., & Liao, Y. S. (2021). Development characteristics, problems and development ideas of leading enterprises in China's agricultural industrialization. *Issues in Agricultural Economy*, (08), 135-144.

Zhao, H. (2012). The impact of government policy support and innovation drive on the development of Chinese agricultural industrialization leading enterprises: Based on the empirical analysis of 894 national key leading enterprises. *Journal of Technology and Economics, 31*(08), 58-62.

Zhao, L. & Tang, J. (2018). Quantitative evaluation of China's carbon emission reduction policy. *Forum on Science and Technology in China*, (01), 116-122+172.