

Evaluation on the Satisfaction Degree of Financial and Tax Policies of Smart Agricultural Operators

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Abstract: Based on 92 respondents, this paper uses analytic hierarchy process (AHP) to construct the satisfaction evaluation model of fiscal and taxation policies for smart agriculture, and makes an empirical analysis on the satisfaction of the current fiscal and taxation policies that support the development of smart agriculture. The analysis shows that: the relevant subjects are generally lack of financial and taxation concepts, the implementation of fiscal and taxation policies supporting the development of smart agriculture is not in place, and the policy effect is not obvious.

1. Introduction

In recent years, in order to support the development of smart agriculture, the central and local governments at all levels have continuously introduced relevant fiscal and tax policies. Therefore, it is necessary to understand the objective evaluation of the beneficiaries on the fiscal and tax policies of smart agriculture, so as to provide good financial and tax policy support for the development of smart agriculture.

2. Questionnaire Design and Data Sources

This paper does not divide them clearly, but integrates the fiscal and tax policies into the questionnaire design and evaluation index design. The questionnaire design includes three parts. The first part is the basic situation of the subjects, including agricultural field, gender, age, education level, annual income, etc. The second part is the evaluation of the respondents' satisfaction with fiscal and taxation policies, including policy cognition, policy identity, policy implementation, policy effect, etc. The third part is the survey subject's understanding of smart agriculture, including constraints, policy recommendations and so on.

From the sample data, most of the respondents engaged in agricultural production, accounting for 44.79%; most of the respondents were male, accounting for 64.58%; the subjects of all ages were basically the same, mostly young and middle-aged; the educational level of the respondents was basically the same at all levels, of which the respondents with no education and low educational background such as primary school and junior high school accounted for about 44.78%; the income level was mostly below 100000 Accounting for about 98.44%.

3. Evaluation Index and Model Construction

In this paper, AHP is used to evaluate the financial and tax policy satisfaction of the relevant subjects of smart agriculture, analyze the influencing factors, design the evaluation index and construct the judgment matrix, get the weight of different factors, and calculate the weighted average score of satisfaction according to the statistical data.

3.1 Construction of Satisfaction Evaluation Model of Fiscal and Taxation Policies for Smart Agriculture

According to the evaluation of relevant subjects' satisfaction with fiscal and taxation policies supporting the development of smart agriculture, this paper divides them into four secondary indicators, namely policy cognition, policy identity, policy implementation and policy effect, and subdivides each secondary index into four third level indicators. As shown in Figure 1.

PRIMARY INDICATORS	SECONDARY INDICATORS	THIRD INDICATORS
SATISFACTION OF FISCAL AND TAX POLICIES FOR SMART AGRICULTURE	POLICY AWARENESS	How easy is it to obtain information
		Degree of understanding
		Policy focus
		Degree of policy orientation or accuracy
	POLICY IDENTITY	Policy recognition
		Policy strength
		Policy implementation link or function area
		Perfection of policy content
	POLICY IMPLEMENTATION	Policy advocacy
		Implementation of policy implementation subjects
		Acceptance and implementation of policy target groups
		Supervision and restraint of policy implementation
	POLICY EFFECT	Target achievement
		Fit degree of policy value
		Policy efficiency and effectiveness
		Economic and social benefits

Fig.1 Index Weight Coefficient

According to the established satisfaction evaluation index (Figure 1), the comparison judgment matrix is constructed by comparing the importance of the factors that affect the same criterion. Among them, A_{IJ} means the relative importance of A_I to A_J . The relative importance was measured by Thomas SETI's 1-9 scale (see Figure 2). The matrix satisfies the following conditions: $A_{IJ} > 0$; $a_{ii} = 1$; $A_{IJ} = 1 / A_{ji}$ ($I, j = 1, 2, n$).

A_{IJ}	DEFINITION
1	Equally important
3	Slightly important
5	More important
7	very important
9	Absolutely important
2, 4, 6, 8	Is the scale value corresponding to the intermediate state between the above judgments
RECIPROCAL	If I factor is compared with J factor, the judgment value is $a_{ji} = 1 / a_{ij}$, $a_{ii} = 1$

Fig.2 1-9 Scale

The criteria layer judgment matrix A_1 , policy cognition judgment matrix B_1 , policy identity judgment matrix B_2 , policy implementation judgment matrix B_3 and policy effect judgment matrix B_4 are constructed as follows.

$$A_1 = \begin{bmatrix} 1 & 1/3 & 1/4 & 1/5 \\ 3 & 1 & 1/2 & 1/3 \\ 4 & 2 & 1 & 1/2 \\ 5 & 3 & 2 & 1 \end{bmatrix}$$

$$B_1 = \begin{bmatrix} 1 & 1/3 & 1/2 & 1/5 \\ 3 & 1 & 2 & 1/3 \\ 2 & 1/2 & 1 & 1/4 \\ 5 & 3 & 4 & 1 \end{bmatrix}$$

$$B_2 = \begin{bmatrix} 1 & 2 & 4 & 3 \\ 1/2 & 1 & 2 & 1/2 \\ 1/4 & 1/2 & 1 & 1/3 \\ 1/3 & 2 & 3 & 1 \end{bmatrix}$$

$$B_3 = \begin{bmatrix} 1 & 1/4 & 1/5 & 1/4 \\ 4 & 1 & 1/2 & 1 \\ 5 & 2 & 1 & 2 \\ 4 & 1 & 1/2 & 1 \end{bmatrix}$$

$$B_4 = \begin{bmatrix} 1 & 2 & 2 & 1/2 \\ 1/2 & 1 & 1 & 1/3 \\ 1/2 & 1 & 1 & 1/3 \\ 2 & 3 & 3 & 1 \end{bmatrix}$$

According to the above judgment matrix, the initial weight coefficient and normalized weight coefficient are calculated according to the formula. The weights of each index are shown in Figure 3.

3.2 Consistency Index Test

The random consistency ratio CR was calculated according to the following formula. Among them, M is the number of sub targets of the tested level, λ_{Max} is the maximum eigenvalue, and λ_i is the eigenvalue of the judgment matrix.

$$CR = \frac{CI}{RI} \quad CI = \frac{\lambda_{max} - m}{m - 1} \quad \lambda_{max} = \frac{\sum_{i=1}^m \lambda_i}{m} \quad \lambda_i = \frac{\sum_{j=1}^m a_{ij} w_j}{w_i}$$

In this paper, M = 4, RI = 0.8845. The CR of this evaluation is less than 0.1, which proves that the consistency of each matrix meets the requirements.

4. Empirical Analysis

After the collected questionnaires are statistically sorted out, the arithmetic mean of each three-level index is calculated, and then the weighted score of each three-level index is calculated according to the index weight design of the above-mentioned AHP, and then the scores of each secondary index are summed up in turn, and finally the weighted score of the first level index of the financial and tax policy satisfaction of the relevant subjects of smart agriculture is obtained. The specific values are shown in Figure 3.

INDICATORS	WEIGHT	INDICATORS	WEIGHT	AVERAGE SCORE	WEIGHTED SCORE	SCORE
POLICY AWARENESS	0.0725	How easy is it to obtain information	0.0837	61.6667	5.1615	58.6572
		Degree of understanding	0.2329	55.2083	12.8580	
		Policy focus	0.1385	58.5417	8.1080	
		Degree of policy orientation or accuracy	0.5450	59.6875	32.5297	
POLICY IDENTITY	0.1697	Policy recognition	0.4714	60.2083	28.3822	61.5751
		Policy strength	0.1791	61.4583	11.0072	
		Policy implementation link or function area	0.0962	61.6667	5.9323	
		Perfection of policy content	0.2533	64.1667	16.2534	
POLICY IMPLEMENTATION	0.2854	Policy advocacy	0.0693	60.0000	4.1580	60.3285
		Implementation of policy implementation subjects	0.2463	57.7083	14.2136	
		Acceptance and implementation of policy target groups	0.4381	62.9167	27.5638	
		Supervision and restraint of policy implementation	0.2463	58.4375	14.3932	
POLICY EFFECT	0.4723	Target achievement	0.2627	55.2083	14.5032	56.1138
		Fit degree of policy value	0.1411	60.9375	8.5983	
		Policy efficiency and effectiveness	0.1411	58.9583	8.3190	
		Economic and social benefits	0.4550	54.2708	24.6932	

Fig.3 Score of Policy Cognition Index

Through the investigation and calculation of the satisfaction degree of intelligent agriculture related subjects in Shanxi Agricultural Valley High Tech Incubation Park, Yangyi Town, tomato Town, and northern forest and fruit science and Technology Park, we can clearly find the weakness of the governments at all levels in supporting the fiscal and taxation policies of smart agriculture. From the calculation results, without considering the subjective factors of the survey subjects and the objective reasons such as the work of the investigation itself, the satisfaction score of the relevant subjects of smart agriculture on the fiscal and taxation policies is not ideal. The evaluation of the satisfaction degree of the financial and taxation policies of the intelligent agricultural operators is 58.4222. The scores are 58.6572, 61.5751, 60.3285 and 56.1138 respectively. The scores of these indicators are basically at the edge of unqualified level, indicating that there are still great defects in these aspects.

5. Main Conclusions and Policy Recommendations

5.1 Main Conclusions

The degree of satisfaction with the implementation of agricultural policies can be reflected by the wisdom of fiscal and tax policies. The results show that promoting the establishment of fiscal and tax awareness, strengthening the implementation of policies and improving the direction of policies are the important contents of implementing the fiscal and taxation policies of smart agriculture.

5.1.1 The Concept of Finance and Taxation is Generally Absent

Public access to relevant fiscal and tax policies is also less, which will inevitably affect the pace of national agricultural modernization and the implementation of smart agriculture. The government should strengthen the publicity of fiscal and tax policies, so that the vast number of agricultural practitioners really understand the relevant fiscal and tax policies.

5.1.2 Low Recognition of Fiscal and Tax Policies

Fiscal and tax policies need a lot of efforts to obtain public recognition. Only by enhancing the identity of fiscal and tax policies can we lay a good foundation for the implementation of fiscal and tax policies. To establish a fiscal and tax policy support system, it is necessary to further deepen the understanding of smart agriculture, so that every citizen can enjoy the benefits brought by the development of smart agriculture and deepen the sense of policy identity.

5.1.3 The Implementation of Fiscal and Taxation Policies is Not in Place

The development of smart agriculture is relatively slow, and there are still difficulties and constraints. Although some policies have been introduced, However, it has not been implemented carefully, the publicity is not in place, and most of the relevant workers lack the understanding of the relevant fiscal and tax policies to support smart agriculture; there are still some problems such as the narrow coverage of some fiscal and tax policies, and the degree of implementation needs to be strengthened, which reflects the deficiencies in the implementation process of relevant policies for smart agriculture by government agencies, grass-roots organizations and other public departments; At the same time, people's low sense of identity for the policy also hindered the implementation of the policy.

5.1.4 The Effect of Fiscal Policy is Not Obvious

The financial and tax policy support given by the government does not inspire the enterprises and farmers. The government should comprehensively use the fiscal and tax policies to mobilize the enthusiasm of farmers and enterprises, enhance the implementation effect of fiscal and taxation policies, and truly play the macro-control role of the fiscal and taxation policies for smart agriculture. Scientific remote control and management of agricultural production.

5.2 Policy Recommendations

5.2.1 Establish a Fiscal and Taxation Policy System to Support the Development of Smart Agriculture

We will increase investment in key fields such as the Internet of things, big data, artificial intelligence and other modern information technologies, agricultural machinery and equipment, and improve the use efficiency of financial funds. In addition, the government should also vigorously support private enterprises, individual farmers and other business entities to improve their

enthusiasm and initiative in developing smart agriculture.

5.2.2 Speed Up the Cultivation of New Professional Farmers

Combined with the strong teachers and scientific research foundation advantages of agricultural universities and related scientific research institutes, the cultivation of professional farmers is included in the national education and training development plan. Give full play to the leading role of the successful smart agriculture demonstration base, organize farmers to visit regularly to understand the operation mode of smart agriculture, and deeply learn how to build and manage smart agriculture.

5.2.3 Accelerate the Improvement of Agricultural Scientific Research System

We should strengthen the top-level design responsibilities of the government, increase the investment of funds, materials and talents in the agricultural scientific research system, promote the mutual cooperation and exchange of agricultural scientific research institutions, and take into account all kinds of high-tech technologies required for the development of smart agriculture.

5.2.4 Strengthen the Infrastructure Construction of Smart Agriculture

We should speed up the entry of modern agricultural machinery and equipment into farmland, strengthen the subsidy policy for purchasing agricultural machinery and equipment, encourage farmers to actively use modern agricultural machinery and equipment, and realize accurate, intelligent and scientific remote control and management of agricultural production.

6. Conclusion

Smart agriculture represents the advanced stage of the development of modern agriculture and is an important support for the promotion of agricultural modernization. As the development direction of China's future agriculture, smart agriculture must provide more fiscal and taxation policy support in the process of smart agriculture and its industrialization, guide the public to establish modern fiscal and taxation concepts, play the role of fiscal and taxation macro-control, strengthen the education of professional farmers, and accelerate the cultivation of new smart agricultural operation subjects.

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