

Analysis of Supply and Demand Situation of Agricultural Insurance Market in China from the Perspective of Government Behavior

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Abstract: Under the combined action of natural reproduction and economic reproduction, agricultural production process is confronted with a variety of risks intertwined with natural risk, social risk and economic risk. The emergence of agricultural insurance is only a matter of the last century, but it has become a financial tool commonly used by more than 100 countries in the world to regulate and control the economy, relieve the pressure of government relief, reduce the loss of agricultural disasters, and stabilize social relations. The development of agricultural insurance effectively alleviates the inherent weakness of agricultural insurance industry. The development of agricultural insurance market in the world is the result of various actions of the government. This paper mainly analyzes the supply and demand characteristics and equilibrium of agricultural insurance market in China from the perspective of government behavior.

1. Supply and Demand Situation of Agricultural Insurance Market in China from the Perspective of Government Behavior

At present, agricultural insurance is an effective financial tool widely used in many countries to regulate economy, relieve the pressure of government relief, reduce the loss of agricultural disaster and stabilize social relations. The development of agricultural insurance market effectively alleviates the inherent weakness of agricultural insurance industry[1]. Although in reality, the information asymmetry of any market will affect the efficiency of the market. However, according to the development of agricultural insurance market in the world, agricultural insurance operated by market is the most appropriate choice to play the function of agricultural insurance security [2].

1.1 Demand of Agricultural Insurance Market in China from the Perspective of Government Behavior

In 2017, China's cultivated land area was 1.349 million square kilometers, herbage land area was 3.193 million square kilometers, forest land area was 2.528 million square kilometers, river water area was 9.507 million square kilometers. The geographical area engaged in agricultural production was vast, and the economic losses caused by natural disasters such as floods, droughts, hail disasters, freezing disasters were diverse and complex [3]. According to Table 1, from 2012 to 2018 the affected area and disaster area in 2013 are the highest. In the following years, the distribution of the disaster area and the disaster area in China is very uneven, but the disaster area and the proportion of the disaster area are maintained at quite high level. The frequent occurrence and economic destruction of natural disasters are the most important environmental factors in the agricultural insurance market.

Table 1: Disaster Situation in China from 2012to 2018 Unit: 1000 hectare

Year	Affected area	Disaster area
2012	24962	13670
2013	31350	12380
2014	24891	12678
2015	21770	14303
2016	26221	11475
2017	18478	12441
2018	20814	18538

Data source: Official Website of China Statistics Bureau

The deterioration of global ecological environment results in the frequency and intensity of natural disasters in agricultural production process. International trade of agricultural products increases the economic risk of agricultural industry. The mode of agricultural production and its environment determine its urgent demand for risk management. Agricultural development needs to rely on effective tools for risk management of agricultural production and operation. In the long history of agricultural development, the emergence of agricultural insurance is just a matter of the last century, but it has become a financial tool used by more than 100 countries in the world to regulate economy, relieve the pressure of government relief, reduce the loss of agricultural disasters and stabilize social relations. The emergence of agricultural insurance has effectively improved the weakness of agriculture.

The demand of agricultural producers and operators for agricultural insurance comes from their limited ability of risk management and guarantee. Under the background of the development of modern agriculture in China, large-scale operation has become the main symbol of the development of modern agriculture. Large scale operation increases the systematic natural risk of agricultural

production and operation. The development of modern agriculture characterized by large-scale needs agricultural insurance as an effective means of risk management. Because of the limited ability of risk management, the stronger the ability of agricultural insurance, the stronger the demand of agricultural insurance will be.

In China, the depth of agricultural insurance is slowly declining, but in the context of the rapid increase of the scope of agricultural insurance, the level of agricultural insurance is still showing an increasing trend. It shows that at present, China's agricultural insurance is still in the stage of "wide coverage, medium guarantee and low depth". Compared with the world agricultural insurance security level in the same period, China's agricultural insurance market is not mature, which shows that China's agricultural insurance market still needs a long time to build.

1.2 Supply Analysis of China's Agricultural Insurance Market from the Perspective of Government Behavior

According to the change of property insurance companies engaged in agricultural insurance business in China during the five years from 2014-2018, it is found that in the past five years, the property insurance companies that continue to operate agricultural business mainly include 23 property insurance companies, including PICC Property Insurance, Guoshou property insurance, Dadi insurance, Taiping property insurance, Taibao property insurance, PingAn Property Insurance, AVIC UNITA, etc. Compared with the companies that do not continue to operate agricultural insurance business, the number of property insurance companies that continue to operate agricultural insurance business is basically stable and the insurance premium income of property insurance companies that operate agricultural insurance business is also relatively stable. The number of property insurance companies that continue to operate agricultural insurance business is stable, which is conducive to providing stable product supply for the agricultural insurance market and the stable and orderly development of the agricultural insurance market.

After 2015, there are six professional agricultural insurance companies in China's agricultural insurance market: Anhua Agricultural Insurance Co., Ltd., Anxin Agricultural Insurance Co., Ltd., Guoyuan Agricultural Insurance Co., Ltd., sunshine Agricultural Mutual Insurance Co., Ltd., AVIC UNITA Property Insurance Co., Ltd. and Zhongyuan Agricultural Insurance Co., Ltd. Professional agricultural insurance companies mainly operate policy agricultural insurance products. Agricultural insurance business accounts for more than 60% of the company's total business income.

Agricultural insurance institutions undertake the risks in insurance market by signing agricultural insurance contracts with agricultural producers and operators. In the process of risk transfer, the supply of agricultural insurance products is completed. The price of agricultural insurance products is the core of agricultural insurance market. It should be noted that, without government intervention, the supply of agricultural insurance market is insufficient to form the agricultural insurance market. The formation of agricultural insurance market needs government intervention to improve the marginal private income of agricultural insurance institutions. Therefore, although the government does not involve the specific operation of agricultural insurance, it has become the most important supplier in the agricultural insurance market.

In the agricultural insurance market, when there is no government intervention, the actual supply is less than the market equilibrium supply, and the actual price demand of the demander is less than the market equilibrium demand. Under the condition of their own actual prices, the supply and demand parties can not form an equilibrium price, and the transaction between the supply and demand parties can not be concluded. Therefore, the government's intervention mainly solves the problem of equilibrium price. Through the implementation of various administrative means, the supply and demand sides can achieve the balance of quantity and price. Compared with other insurance markets, agricultural insurance intermediaries rarely appear in the agricultural insurance market.

1.3 Analysis of Supply and Demand Situation of Agricultural Insurance Market in China from the Perspective of Government Behavior

The positive externality of agricultural insurance determines the high premium characteristics of agricultural insurance products. On the premise of fixed demand, improving the supply level of agricultural insurance can effectively improve the marginal private income of insurance institutions. On the premise of fixed supply, increasing demand can effectively improve the marginal private income of the insured. At the same time, improving the supply and demand is an effective way to solve the double cold of supply and demand in the agricultural insurance market. From the practical experience of various countries in the world, we can see that agricultural insurance subsidies play an important role in promoting the development of agricultural insurance. Its main principle is to reduce the costs borne by both sides, stimulate the enthusiasm of both sides to participate in the transaction, and promote the further development of the agricultural insurance market. Based on the actual situation of the existing agricultural insurance market in China, and in strict compliance with the principle of market competition, the government's administrative intervention is the main economic power for property insurance companies to operate agricultural insurance business. Under the encouragement of various favorable policies of the government, property insurance companies can actively start agricultural insurance product development, rate determination, business entrustment and other related businesses. The government's involvement in the agricultural insurance market not only solves the dilemma of "market failure" of agricultural insurance in China, but also effectively avoids the situation of "government failure" and realizes the transition from "supply and demand double cold" to "supply and demand double prosperous" in the agricultural insurance market in China.

2. Analysis of the Characteristics of China's Agricultural Insurance Market from the Perspective of Government Behavior

2.1 Analysis of Supply Characteristics of Agricultural Insurance Market from the Perspective of Government Behavior

The analysis of supply characteristics of agricultural insurance market mainly includes the following two aspects:

First, the diversity of agricultural insurance suppliers. According to the degree of government participation and the attribute of the subject matter of agricultural insurance, the agricultural

insurance market in China is divided into basic agricultural insurance market, innovative agricultural insurance market and commercial agricultural insurance market. The agricultural insurance products in the basic agricultural insurance market take the main grain crops and livestock as the insurance subject matter, which can develop under the continuous and stable subsidy policy of the central government, so the governments at all levels are the main supply subjects in the market. The commercial agricultural insurance market is dominated by commercial operation and lacks the participation of government administrative means. The innovative agricultural insurance market takes the agricultural products with local characteristics as the insurance subject matter and operates mainly under the financial subsidies of the local government. The basic agricultural insurance market basically meets the needs of agricultural producers. The commercial agricultural insurance market and the innovative agricultural insurance market have also entered the initial stage of development, driven by the sound development of the basic agricultural insurance market. Due to the diversification of agricultural insurance market forms, the diversity of the existing agricultural insurance supply main body in China.

Second, the supply of agricultural insurance increases the total social welfare. On the one hand, to improve the risk management level of their own production and operation. On the other hand, it creates social benefits by ensuring the national food security and maintaining the stability of agricultural products market. The positive externality of agricultural insurance is of great significance to the development of agriculture in China. However, the social benefits of agricultural insurance are difficult to quantify and value, and the social benefits created by the insured are not included in the price of agricultural insurance products. When pricing agricultural insurance products, the marginal social benefits of agricultural insurance are ignored to exceed the private marginal benefits. In order to increase the supply of agricultural insurance products in the agricultural insurance market, it is necessary to give financial and tax incentives to the operation organizations of agricultural insurance business through administrative arrangements, standardize the operation mechanism of the operation organizations of agricultural insurance by using the legal system, coordinate the interests of agricultural insurance institutions and Insurance Subjects, and ensure the sustainability of the supply and demand of agricultural insurance products, Only by ensuring the stability of the agricultural insurance market can we increase the social welfare of all the members of the society.

2.2 Analysis of Demand Characteristics of Agricultural Insurance Market from the Perspective of Government Behavior

The demand characteristics of agricultural insurance market are analyzed in the following two aspects:

First, the industrial relevance influences agricultural insurance demand. In 2018, Some opinions of the Central Committee of the Communist Party of China and the State Council on adhering to the priority development of agriculture and rural areas and doing a good job in the work of "agriculture, rural areas and farmers" pointed out that under the strategic goal of deepening the structural reform of the agricultural supply side, ensuring the effective supply of important agricultural products is an important task to do a good job in the work of "agriculture, rural areas and farmers". As the basic industry of national economy, the transfer of production factors from agriculture to industry and

service industry shows that agriculture is closely related to other industries. As agricultural insurance not only helps farmers to disperse risks, but also is conducive to the production and development of agriculture. It has obvious interest spillover. Through the administrative power of the government, it can make up and correct the shortcomings of the market. Therefore, agricultural insurance not only provides risk guarantee for agricultural production, but also provides guarantee for the development of other industries. Provide better risk guarantee for social and economic development.

Second, the individual differences influences agricultural insurance demand. At present, the main characteristics of agricultural products in China are "low security, low premium and wide coverage" With the development of modern agriculture, the scale of agricultural production will concentrate the agricultural risks borne by a single agricultural producer. With the development of scale management, there are more and more large-scale farmers, family farmers, farmers' cooperatives, agricultural leading enterprises and other new types of agricultural management subjects. There are great differences in many attributes between the new agricultural operation subject and the traditional small-scale farmers. The demand for agricultural insurance of agricultural producers and operators under the scale division is different. The new type of agricultural operators need agricultural insurance products with "high security, deep and wide range", and have stronger risk awareness.

2.3 Analysis of Supply and Demand Balance of Agricultural Insurance Market from the Perspective of Government Behavior

In the agricultural insurance market, the insurance subject, the government and the insurance institution have different behavior logic. Decision preference guides each subject to make the behavior that can maximize their own utility in their interaction. In the agricultural insurance market, the interaction of different behavior logic of each subject will lead to the change of behavior decision-making choice of each subject in a certain direction [4]. The main goal of the organizations and operators of agricultural insurance business is to take into account the social and ecological benefits on the premise of maximizing the economic benefits. The double positive externalities of supply and demand in the agricultural insurance market make the underwriting behavior of the agricultural insurance business, the insuring behavior of the agricultural producers and operators contradict the business objectives In the agricultural insurance market, the cost and interest imbalance between the supply and demand sides of agricultural insurance reduces the supply and demand scale of agricultural insurance, resulting in the disappearance of supply and demand behaviors in the agricultural insurance market [5]. It is necessary for the government to intervene in the agricultural insurance market.

3. Conclusions

Based on the analysis of the supply and demand situation of agricultural insurance market, the status quo and characteristics of supply and demand, the following basic conclusions are as follows:

First, the government should vigorously develop the basic agricultural insurance market. Looking at the current situation of China's agricultural insurance market in recent years, it can be found that the basic agricultural insurance product market, commercial agricultural insurance

market and innovative agricultural insurance product market are still in a low level and balanced development. The frequent occurrence of disasters and economic disasters lead to the high loss ratio of insurance companies and the high premium rate of agricultural insurance market; the high premium rate restrains the insured demand of the main body of insurance, which leads to the shortage of supply and demand of agricultural insurance. From the perspective of the development process of global agricultural insurance, the agricultural insurance market can only be developed under the promotion and guidance of government policies. From 1993 to 2003, our government began to commercialize the agricultural insurance business. As a result, the scale of agricultural insurance business under the lack of government financial subsidies increased negatively year by year, and finally the market shrank and even disappeared in some provinces. Based on the experience of the development of China's basic agricultural insurance market, this paper draws a conclusion similar to other countries in the world that develop agricultural insurance: the market of basic agricultural insurance products must be operated under the guidance of the government; the market of basic agricultural insurance cannot be economically encouraged by commercial operation, and must be operated under the guidance of the government. Although China's agricultural insurance market has been well developed since 2007, the macro observation and vertical comparison of the development process of agricultural insurance show that China's agricultural insurance supply quantity and quality have made great progress in stages, and the agricultural insurance guarantee ability has been continuously improved, but the core position of basic agricultural insurance market in the development of agricultural insurance market cannot be changed. Compared with other property insurance business, the proportion of the original premium income of agricultural insurance in the total income of property insurance is still low. The penetration rate of agricultural insurance has not increased but decreased, which does not match the demand of agricultural risk guarantee. There is a long way to go to develop the basic agricultural insurance market. Only the development of the basic agricultural insurance market is the advance of the development of the commercial agricultural insurance market and the innovative agricultural insurance market.

Second, large-scale operation increases the demand for agricultural insurance. In the development of modern agriculture marked by large-scale operation, the systematic risks undertaken by unit agricultural producers and operators increase, which increases the demand for agricultural insurance. The emergence of the new type of agricultural operation subject promotes the continuous improvement of the modern agricultural industry system, production system and operation system. There are many differences between small-scale farmers and new-type agricultural operators in agricultural production by operation, especially the demand for risk guarantee of new-type agricultural operators is different from that of small-scale farmers. Insurance products that the new business entity can accept and have certain profit margin. And with the further understanding of the insurance subject to the agricultural insurance, many agricultural producers and operators, especially small-scale farmers, have changed their psychology of "buying insurance without disasters is suffering losses", "this year without disasters, they will not buy it next year". They can correctly recognize the risk guarantee function of the agricultural insurance, rather than the financial function. The change of insurance awareness of agricultural insurance further increases the demand of agricultural production and operators for agricultural insurance.

References

- [1] Cheng Wei, Li Dan. *Analysis of Behavior Characteristics of the Main Body of Crop Insurance under Asymmetric Information Environmental Condition*. *EKOLOJI*, 28(107): 3397-3403.
- [2] Akerlof GA (1970) *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*. *Quarterly Journal of Economics*. 84(3): 488-500.
- [3] *Ministry of Agriculture of the People's Republic of China (2018) Report on China's Agricultural Development in 2017*. Beijing. China Agricultural Publishing House.
- [4] Vincent H. Smith, Madhu Khanna, Brian E. Roe. *Crop Insurance, Moral Hazard, and Agricultural Chemical Use*. 1996, 78(2): 428-438.
- [5] Myyra Sami, Pietola Kyosti. *Testing for Moral Hazard and Ranking Farms by Their Inclination to Collect Crop Damage Compensations*. Zurich: Switzerland. European Association of Agricultural Economists. 2011.