



**STUDY ON INFLUENCING FACTORS OF POLICY
AGRICULTURAL INSURANCE PERFORMANCE
IN GUANGDONG PROVINCE**



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ZOU XIAO

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Rangsit University
Academic Year 2024

Prof.Poomthan Rangakulnuwat, Ph.D.
Examination Committee Chairperson

Piyaporn Chucheep, D.B.A.
Member

Nakamol Chansom, Ph.D.
Member

Pashatai Charutawephonnukoon, Ph.D.
Member

Sorn Sutthikhun Orunruk, D.B.A.
Member and Co-Advisor

Chanakiat Samarnbutra, Ph.D.
Member and Advisor

Approved by Graduate School

(Prof.Suejit Pechprasarn, Ph.D.)

Dean of Graduate School

February 28, 2025

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Zou Xiao

Researcher

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 Program : Doctor of Business Administration
 Dissertation Advisor : Chanakiat Samarnbutra, Ph.D.
 Dissertation Co-Advisor : Sorn Sutthikhun Orunruk, D.B.A.

Abstract

Policy agricultural insurance is an important tool for agricultural risk management, but it also faces some problems in the process of implementation. This study aims to explore the relationship between government support, agricultural insurance demand, insurance supply capacity and agricultural insurance performance, so as to optimize regional insurance strategies and improve policy effects. In this study, the expert interview method and structural equation model (SEM) are used to analyze the mixed research method. Five experts were interviewed to assess the impact of farmers' insurance awareness, government subsidies, claims efficiency, product adaptability, and local government actions on performance. 400 households in eastern, central and western Guangdong were selected by stratified sampling to conduct quantitative analysis of the questionnaire data and explore the relationship between each factor.

The findings show that government policy support, insurance supply capacity, and farmers' demand significantly affect insurance performance. In addition, the correlation matrix analysis of 13 observed variables affecting agricultural insurance performance shows that when $CMIN/DF=1.112$, $RMR=0.053$, $RMSEA=0.017$, $GFI=0.895$, $CFI=0.99$. The model fits well with the empirical data. The study provides practical suggestions for policy makers and insurance institutions to optimize policies and services, which will help improve agricultural insurance performance and farmers' insurance willingness.

(Total 268 pages)

Keywords: Guangdong, Policy Agricultural Insurance, Performance Factor

Student's Signature Dissertation Advisor's Signature
 Dissertation Co-Advisor's Signature

Table of Contents

	Page
Acknowledgements	i
Abstracts	ii
Table of Contents	iii
List of Tables	v
List of Figures	ix
Chapter 1 Introduction	1
1.1 Background of the study	1
1.2 Statement of the problem	6
1.3 Research Questions	7
1.4 Objectives of the study	7
1.5 Significance of study	7
1.6 Scopes and limitation of research	8
1.7 Keywords	9
Chapter 2 Literature Review	11
2.1 Theories and Concepts	11
2.2 Relationships among variables	23
2.3 Hypothesis	76
2.4 Guangdong policy agricultural insurance overview	78
Chapter 3 Research Methodology	86
3.1 Qualitative method	86
3.2 Quantitative method	88
3.3 Conclusion	97

Table of Contents (continued)

	Page
Chapter 4	Results of Data Analysis
	98
4.1	Qualitative research findings
	98
4.2	Quantitative research findings
	138
Chapter 5	Summary, Discussion and Recommendation
	186
5.1	Research Summary
	186
5.2	Discussion
	201
5.3	Recommendation
	213
References	220
Appendices	253
Appendix A	Questionnaire
	254
Appendix B	Certificate of Approval
	266
Biography	268

List of Tables

Tables	Page
2.1 Literature Form on Factors Affecting Agricultural Insurance Performance	65
2.2 Table on the types of policy agricultural insurance and government subsidies in Guangdong Province	82
3.2 Questionnaire distribution	89
4.1 Could you briefly describe your professional background and experience related to agricultural policy, insurance, or agricultural development in Guangdong Province?	98
4.2 How familiar are you with the agricultural insurance policies implemented in Guangdong, and how have you been involved in this area?	100
4.3 How would you describe the current state of agricultural insurance in Guangdong Province?	102
4.4 What key challenges or opportunities do you see regarding agricultural insurance in this region?	104
4.5 In your opinion, what are the main objectives of Guangdong agricultural insurance policy?	106
4.6 Do you think it is necessary to study the influencing factors of agricultural insurance performance in Guangdong Province? What factors do you believe have the most significant impact on the performance of agricultural insurance policies in Guangdong?	108
4.7 From which perspective (government, farmers, insurance companies) do you think it will be more comprehensive to discuss the performance of policy agricultural insurance in Guangdong Province?	110

List of Tables (continued)

Tables	Page
4.8 How do you see the relationship between farmers, insurers, and the government in implementing agricultural insurance policies?	113
4.9 From your perspective, how well do agricultural insurance policies align with the needs and risks faced by farmers in Guangdong Province?	115
4.10 How do farmers generally perceive agricultural insurance in this region? What factors influence their decision to participate or not participate in insurance schemes?	117
4.11 How is the implementation of policy agricultural insurance policy in Guangdong Province?	119
4.12 How do you think government subsidies and support affect the implementation of agricultural insurance?	120
4.13 How do you think Insurance Supply Capacity affects the implementation of agricultural insurance?	122
4.14 In your opinion, is the design of policy agricultural insurance in Guangdong Province reasonable? Is the premium reasonable?	125
4.15 Does the service level of Guangdong policy agricultural insurance Company meet the needs of farmers?	127
4.16 What improvements or policy adjustments do you think are necessary to enhance agricultural insurance performance in Guangdong Province?	129
4.17 Are there specific technologies or innovations that could improve risk assessment, data collection, or claims processes in agricultural insurance?	132

List of Tables (continued)

Tables	Page
4.18 How do you see the future of agricultural insurance evolving in Guangdong, especially in light of emerging challenges or opportunities?	135
4.19 Personal Information	139
4.20 Agricultural Information	140
4.21 Information on the agricultural insurance policy	142
4.22 Descriptive analysis of the variables	144
4.23 Test of normal distribution	146
4.24 Reliability Analysis of the Government Policy Support Scale	148
4.25 Reliability analysis of the insurance supply and energy force table	149
4.26 Reliability analysis of farmers' effective demand table	151
4.27 Reliability Analysis of the Agricultural Insurance Performance Scale	152
4.28 Government Policy Support Scale KMO and Bartlett spherical tests	153
4.29 Interpretation of the total variance	154
4.30 Post-rotation composition matrix	155
4.31 The suitability test criteria	157
4.32 Validation factor model fit for government policy support	157
4.33 Convergent validity	158
4.34 Differentiating validity	160
4.35 KMO and Bartlett spherical test	160
4.36 Interpretation of the total variance	161
4.37 Composition matrix after rotation	162
4.38 Model adaptation of insurance supply capacity	164

List of Tables (continued)

	Page
Tables	
4.39 Convergent validity	165
4.40 Differentiating validity	166
4.41 KMO and Bartlett spherical test	167
4.42 Interpretation of the total variance	167
4.43 Composition matrix after rotation	168
4.44 Confirmatory factor model fit for farmers' effective needs	170
4.45 Convergent validity	171
4.46 Differentiating validity	172
4.47 Agricultural Insurance Performance Scale KMO and Bartlett spherical tests	172
4.48 Interpretation of the total variance	173
4.49 Post-rotation composition matrix	174
4.50 Adaptability of the validation factor model for agricultural insurance performance	176
4.51 Convergent validity	177
4.52 Differentiating validity	178
4.53 Results of the correlation analysis	179
4.54 Adaptability of the model of the structural equation	181
4.55 Results of the pathway coefficient analysis of the structural equation model	183
4.56 Test of mediation effect by Bootstrap method	185

List of Figures

Figures	Page
2.1 Demand Theory Chart	12
2.2 Agricultural Insurance Consumer Residual Benefits Chart	18
2.3 Government Policy Support	25
2.4 GS influence mechanism diagram	27
2.5 RS influence mechanism diagram	29
2.6 PS influence mechanism diagram	33
2.7 GP influence mechanism diagram	34
2.8 Agricultural insurance supply capacity	36
2.9 ISC influence mechanism diagram	41
2.10 EP influence mechanism diagram	49
2.11 The hypothetical model	76
2.12 Market share of insurance companies underwriting policy agricultural insurance	78
2.13 Guangdong Policy Agricultural insurance insurance Premium Income Chart	79
2.14 Guangdong Policy Agricultural insurance Insurance indemnity expenditure Chart	80
2.15 Guangdong Province policy agricultural insurance payout rate chart	81
3.1 Research area	88
4.1 The confirmatory factor model of government policy support	156
4.2 The confirmatory factor model of insurance supply capacity	163
4.3 The confirmatory factor model of farmers' effective demand	169
4.4 Validation factor model of agricultural insurance performance	175
4.5 The structural equation model	180
5.1 Agricultural Insurance Performance Impact Relationship	188

Chapter 1

Introduction

1.1 Background of the study

Agriculture forms the backbone of the national economy, playing a critical role in its development. Both in the past and in the foreseeable future, agriculture is the source of food and clothing and the basis of survival for human beings. Data from the Food and Agriculture Organization of the United Nations statistical database, in 2021, the global production of primary crops reach 9.5 billion tons, marketing a 54% increase since 2000 and a 2% increase from 2020. The global gross value of agricultural production reached US\$4.12 trillion. Although the share of agricultural output in GDP has declined with industrialization, the fundamental position of agriculture has not changed.

The year 2023 is the beginning of China's second hundred-year march towards its goals, and the most arduous and burdensome task in the comprehensive construction of a modern socialist country will remain in the countryside. The report of the 20th National Congress of the Communist Party of China points out that it is necessary to "comprehensively promote the revitalization of the countryside", and that the countryside must be revitalized if the nation is to be rejuvenated. "Comprehensively promote the revitalization of the countryside, adhere to the priority development of agriculture and rural areas, and accelerate the construction of a strong agricultural country, which is the foundation of the socialist modernization of a strong country.

Agriculture is a vulnerable industry. (Zhao, 2023), and each of the three basic factors of agricultural activities, the crops themselves, natural factors, and human labor, brings great risks and fatal losses to agricultural activities.

According to the Global Natural Disaster Assessment Report 2021 (Ministry of Emergency Management-Ministry of Education Institute for Disaster Reduction and Emergency Management; Beijing Normal University School of National Security and Emergency Management; and the National Disaster Reduction Center of the Ministry of Emergency Management, 2021), a total of 367 larger natural disasters occurred globally in 2021, resulting in direct damages of US\$252.138 billion.⁴ China is one of the top ten largest agricultural countries in the world, with an agricultural output of 686.53 million tons as of 2022, with a rural population of 490 million and a total agricultural output value of 686.53 million tons. China is a vast country, with agricultural production scattered across 37 regions and provinces, and its vast territory also means that it faces the impact of more kinds of disasters. In 2021, China's annual natural disasters caused 107 million people to be affected by disasters, with 867 dead and missing, and the area of crops affected by disasters amounted to 11,739 kilo hectares, of which 1,632 kilo hectares went into extinction, and the direct economic losses amounted to 334.02 billion yuan. Coupled with the low per capita disposable income of rural residents, farm households are exposed to both natural and economic risks.

Agricultural insurance is one of the important tools for agricultural risk management and an important cornerstone for the stable development of China's agricultural industry (Zhao, 2023). Agricultural insurance has a positive role in stabilizing the income of grain farmers, supporting rural revitalization, and serving to guarantee food security (Ministry of Finance, Department of Finance, 2023). We need to take the initiative to improve the level of agricultural insurance protection in China, stabilize the income of grain farmers, support rural revitalization, and better serve to guarantee national food security (The Central People's Government of the People's Republic of China, 2023).

Agricultural insurance can improve social welfare security and achieve welfare effects by increasing the income of farmers and promoting the rationalization of resource allocation (Zeng, Qi & Wang, 2022). The increase in the level of agricultural

insurance protection also has a significant role in promoting the growth of agricultural production efficiency (Liu & Zhe, 2023). Agricultural insurance can also reduce economic losses in agricultural production due to natural disasters and other factors, thus maintaining farmers' motivation to engage in food production and ensuring national food security (Kong, Li, Peng & Wong, 2023). Scholars also generally agree that agricultural insurance is important in maintaining national financial stability and increasing the willingness of poor rural households to adopt new technologies (Tang, Wang, & Hui, 2010). Agricultural insurance can shift farmers' attention from risk management to improved production techniques, thereby increasing farmers' income and stabilizing their production expectations (Zeng et al., 2022). Agricultural insurance is not only an important helper for the agricultural economy but also a common tool for the development of green agriculture, which can reduce chemical inputs and protect the environment (Li, Tang, Cao, & Guo, 2022).

Agricultural insurance also plays a role in agricultural efficiency. There is a positive correlation between the implementation of agricultural insurance policies and poverty alleviation efficiency (Huang, Wang, & Liu, 2018). The increase of agricultural insurance coverage in China promotes the growth of total factor productivity of farm households (Sun, Zhang & Wu, 2022). Agricultural insurance is conducive to enhancing agricultural carbon productivity (Zhu, Yin & Yuan, 2023). Agricultural insurance has a significant contribution to the improvement of agricultural eco-efficiency (Liang, 2023). Although agricultural insurance has a positive effect on the related efficiency, agricultural insurance efficiency is measured for 31 regions in China, agricultural insurance efficiency is belonging to a low level (Lai, 2022). When the overall comprehensive efficiency of policy agricultural insurance is studied, it is also found that its efficiency belongs to the upper middle level, which is affected by a variety of factors to develop (Zhang, 2022). Among them, environmental factors have a greater impact on the regional agricultural insurance to help agriculture efficiency measurement (He, 2022).

Fiscal subsidies for agricultural insurance are an effective tool for adjusting agricultural land use allocation (Si, Li, & Jiang, 2023). Agricultural insurance financial subsidy policy positively affects food security (Kong, Li, Peng, & Wong, 2023). However, through the data of 31 regions in China, the overall level of agricultural insurance premium subsidy efficiency in each region is low and differentiated (Wang, Pan, & Liu, 2022). Research on the efficiency of agricultural insurance financial subsidies for Jilin Province also found that the efficiency of its related resource allocation, management system, and scale is low (Wu, 2022). The types of agricultural insurance and subsidies under different geographical areas, different production and management modes and production environments, and resource conditions show great differences (Mo, 2021).

Agricultural insurance performance is reflected in two layers of aspects, whether it enhances the gross agricultural product for the society and whether it gets paid out in time for the farmers (Li, 2020). The goal of policy agricultural insurance is whether it brings economic and social benefits under the premise of stabilizing farmers' income (Wang X., Wang C., & Li, 2017). The government and insurance companies are the supply side of policy agricultural insurance, and whether the behavior of these two main bodies synergistically and powerfully affects the satisfaction of agricultural insurance farmers and agricultural insurance performance (Jia, 2018). Many scholars also measure agricultural insurance performance under specific conditions, and in the context of rural revitalization, a policy agricultural insurance performance evaluation system is constructed from four perspectives: the level of protection, the level of government subsidies, the level of development power, and the level of poverty reduction capacity (You, Zhu, & Xu, 2022). Using the DEA model, the performance of agricultural insurance in China is measured from the macro and micro perspectives (Shen, 2017). For agricultural insurance companies in Gansu Province from the perspective of agricultural insurance premium income, agricultural insurance coverage and the level of protection to measure the performance (Li, 2018).

However, most scholars' studies show that the development of policy agricultural insurance in China is flawed and varied. The empirical results of 24 provinces over the past 10 years show that the overall performance of China's policy agricultural insurance is on an upward trend, but the performance of each province is different (You et al., 2022). The comprehensive performance level of China's plantation insurance is low, and there are obvious provincial differences (Li, 2018). The performance of all three stakeholders of agricultural insurance performance in Heilongjiang Province has performed poorly. There is still a large gap between the level of agricultural insurance development and high-quality agricultural insurance (Jiao, 2021). There is a certain spatial difference between the efficiency of agricultural insurance in Liaoning Province between the central region and the efficiency level of the north and south (Gu, Chen & Wan, 2022).

Agricultural insurance performance is variable and also influenced by many factors. Incentives, capabilities and institutional factors, are the three main motivations for purchasing crop insurance (Rajeev & Nagendran, 2023). Standing on the perspective of farmers, the amount of agricultural fertilizer construction, agricultural insurance premium income, the number of financial subsidies for agricultural insurance, agricultural insurance density, per capita disposable income of farmers, agricultural insurance compensation expenditure, crop sowing area, and the depth of agricultural insurance will also have an impact on the policy agricultural insurance performance (Wang, 2023). From the perspective of insurance companies, unstable business operations of insurance companies, serious impacts by natural disasters, insufficient application of science and technology, and insufficient synergy of agricultural information will also affect agricultural insurance performance. The government's subsidy coverage is not high, covering few types of insurance, and low subsidy standard will likewise affect agricultural insurance performance (Jiao, 2021).

In recent years, China's agricultural insurance has developed rapidly. From 2007 to 2022, the risk protection provided by agricultural insurance grew from 112.6 billion yuan to 5.46 trillion yuan, with an average annual growth rate of 38.83%.

Agricultural insurance premium income grew from 5.34 billion yuan to 119.2 billion yuan, exceeding 100 billion yuan for the first time, a year-on-year increase of 23%. 2022 China's agricultural insurance provides risk protection for 167 million sub-farming households. 2019 China's agricultural insurance has entered a stage of high-quality development, and the scale of agricultural insurance has remained the first in the world. China's agricultural insurance has realized the three major staple grains to complete the cost of insurance and planting income insurance policy 13 grain producing provinces 826 grain-producing counties full coverage (People's Republic of China Central People's Government, 2023).

The year 2023 is the beginning of China's second 100-year march towards the goal of building a modernized socialist country, and the most arduous and burdensome task remains in the countryside (The Central People's Government of the People's Republic of China, 2022). The 20th National Congress of the Communist Party of China (CPC) emphasized the need for comprehensive strategy to revitalize rural areas. (The Central People's Government of the People's Republic of China, 2022). Agricultural insurance, as an important hand in the strategy of rural revitalization, has seen the central government continue to increase its support for agricultural insurance (Yang, 2023). The comprehensive performance level of China's agricultural insurance performance is low, and the performance differences are obvious, and the influencing factors are different depending on the observation angle and region.

1.2 Statement of the problem

Through the previous chapter we found that agricultural insurance is developing rapidly and is significant, but there are defects and differences in the development of agricultural insurance. This paper focuses on the performance of agricultural insurance, conducts regional empirical research based on Guangdong Province, starts from the three major interests of policy agricultural insurance, and identifies the factors affecting the performance, so as to provide reform ideas and suggestions for the development of policy agricultural insurance in Guangdong

Province and the whole country.

1.3 Research Questions

1.3.1 To explore the relationship between government policy support, insurance company supply and farmers' effective demand in Guangdong Province.

1.3.2 What factors affect policy agricultural insurance performance in Guangdong Province?

1.3.3 How to improve policy agricultural insurance performance in Guangdong Province?

1.4 Objectives of the study

1.4.1 The relationship among effective demand of policy agricultural insurance customers, government support and supply capacity of insurance companies in Guangdong Province was studied.

1.4.2 To explore whether government policies, effective demand of farmers and supply capacity of insurance companies will affect the performance of policy-based agricultural insurance in Guangdong Province.

1.4.3 Analyze the influencing factors of policy agricultural insurance performance in Guangdong Province, explore its influencing mechanism, and provide ideas for proposing policy agricultural insurance performance improvement strategies.

1.5 Significance of study

1.5.1 Theoretical significance

Analyzing the influencing factors of policy agricultural insurance performance in Guangdong Province from three dimensions, identifying the effects of each influencing factor and revealing its influencing mechanism. The establishment of

various models and quantitative analysis based on the models, as well as the research on the performance of policy agricultural insurance and the influencing factors in this paper are all dedicated to providing corresponding theoretical basis and empirical evidence for the research on the evaluation of policy agricultural insurance performance and the enhancement strategy. Support.

1.5.2 Practical significance

Guangdong Province is a strong economic province and a traditional agricultural province in China. The Pearl River Delta (PRD). Plain in Guangdong Province is an important commodity grain base in China and plays an important role in national food security. The research on the factors influencing the performance of policy agricultural insurance is a practical and highly differentiated topic that requires regional empirical research. Based on Guangdong Province, this thesis measures the performance of the three major interests of policy agricultural insurance and identifies the factors influencing the performance from the perspective of the three major interests of policy agricultural insurance, in order to provide reform ideas and suggestions for the development of policy agricultural insurance in Guangdong Province as well as in the whole country.

1.6 Scopes and limitation of research

1.6.1 The scope of research:

The situation of policy agricultural insurance performance level in Guangdong Province; Factors affecting the performance of policy agricultural insurance in Guangdong Province.

1.6.2 The limitation of research:

Policy agricultural insurance performance research is research is more complex, involves a wide range of systems, by personal ability, time constraints, this paper's research has the following shortcomings:

1) This paper is based on the research data obtained from the questionnaire survey to analyze the impact of the farmers' dimension on the performance into the study, subject to the subjective personal factors of the survey respondents as well as the impact of the problems in the design of the questionnaire, there are certain defects and biases in the data collected.

2) In the research data, the scope of the research sample does not include the whole country, which may be affected by the level of economic development in Guangdong Province and other aspects of the lack of universality.

3) In this paper, in the study of micro-performance, the policy agricultural insurance data used in Guangdong Province until 2022, and will continue to follow up and analyze if it is able to do so in the future.

4) 95% of China's agricultural insurance market share is policy agricultural insurance (Qin, Du, Jia & Ma, 2023), and policy agricultural insurance is the mainstay of agricultural insurance in China. This paper blurs the data distinction between agricultural insurance and policy agricultural insurance in the Chinese market. It may cause a subtle difference from the reality.

1.7 Keywords

Government Policy Support: Government policy support means that governments at all levels promote the development of agricultural insurance through the formulation and implementation of relevant policies to improve farmers' ability to

resist natural disasters and market risks and ensure the stability of agricultural production. (Long & Zhang, 2024).

Insurance Supply Capacity: Agricultural insurance supply refers to the total amount of insurance goods that each insurance company is willing and able to provide in the agricultural insurance market under certain insurance price conditions (Cui, 2022) The supply capacity of policy agricultural insurance refers to the ability to provide policy agricultural insurance products and services (Hou, 2018).

Innovation ability: Continuous innovation ability means that insurance companies inject diversified products into the policy agricultural insurance market, provide technical support for insurance services, and provide ideas and technologies for management methods.

Operating ability: The operating ability of an insurance company refers to the ability of an insurance company to operate, set reasonable premiums, and pay reasonable compensation.

Service level: Insurance company services refer to the services provided in the insurance process.

Effective Demand of Farmers: Effective demand: The demand for policy agricultural insurance refers to the demand of farmers for policy agricultural insurance in a certain period and rate, including two levels: first, farmers have the willingness to participate in policy agricultural insurance but have no ability to pay, and those have the ability to pay but have no willingness to buy, which is called the potential demand for policy agricultural insurance; The second is that farmers have both the willingness to participate in policy agricultural insurance and the ability to pay, which is called the effective demand for policy agricultural insurance. (Hou, 2018).

Chapter 2

Literature Review

2.1 Theories and concepts

2.1.1 Theory's

2.1.1.1 Effective Demand Theory:

Effective demand refers to the demand for goods or services that consumers (in this case, farmers) have the ability to pay and are willing to buy within a certain period of time. In policy agricultural insurance, effective demand is not only farmers' desire for insurance protection, but also their actual payment ability and choice willingness.

The effective demand for agricultural insurance is determined by both the supply curve and the demand curve for agricultural insurance. As a special commodity, the demand for agricultural insurance is the quantity of agricultural insurance that farmers are willing and able to buy in a certain period of time at all possible premiums, which we denote by the D curve. The supply of agricultural insurance is the amount of agricultural insurance that agricultural insurance operators are willing and able to offer for sale at all possible premiums within a certain period of time, which we denote by the S curve (Zhen, 2010).

The demand curve for agricultural insurance is downward sloping, with agricultural insurance premiums moving inversely to the amount of agricultural insurance demanded. The supply curve is upward sloping, with agricultural insurance premiums moving in the same direction as the quantity of agricultural insurance supplied.

There are many factors affecting the demand for agricultural insurance,

when the factors supplying agricultural insurance remain constant (supply curve S_0 remains constant), the demand curve D_0 shifts. If the demand for agricultural insurance increases, the demand curve for agricultural insurance moves to the right from D_0 to D_2 , and the effective demand rises from Q_0 to Q_{02} , and vice versa, the effective demand falls, from Q_0 to Q_{01} .

When the factors in the demand for agricultural insurance are constant (demand curve D_0 is constant), supply curve S_0 shifts. If the supply of agricultural insurance is increased so that the supply curve of agricultural insurance shifts to the right from S_0 to S_2 , the effective demand rises from Q_0 to Q_2 . Conversely the effective demand falls from Q_0 to Q_1 . (As shown in the figure 2.1).

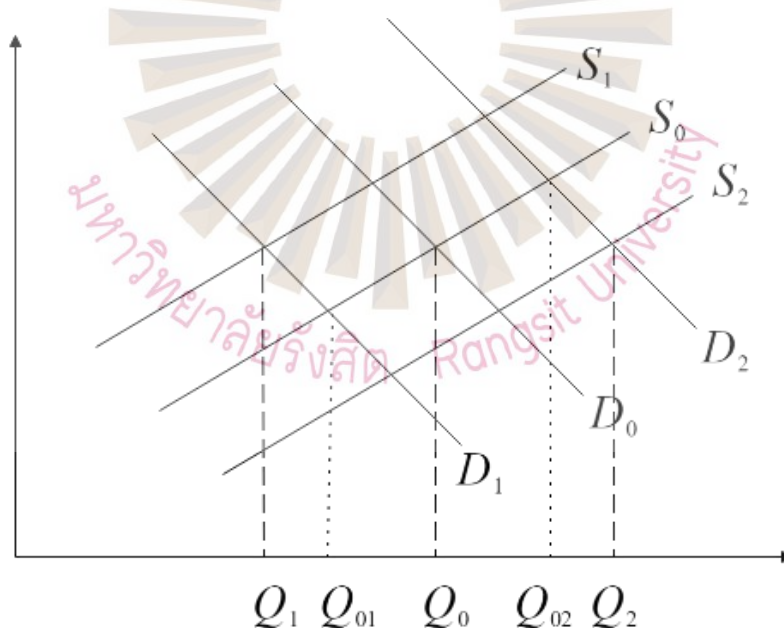


Figure 2.1 Demand Theory Chart

Source: Zhang, 2020

Through the integrated analysis of numerous research results at home and abroad, this paper discusses the key elements of effective demand theory in the field of agricultural insurance, such as farmers' income, risk awareness, insurance product price and guarantee degree, and how they affect the performance of agricultural insurance, including insurance participation rate, compensation situation and guarantee effect on agricultural production.

Farmers' income is the basic factor that affects the effective demand of agricultural insurance. A large number of studies have shown that low-income farmers are often faced with financial constraints, and are more inclined to meet the basic needs of life and buy agricultural insurance. For example, in the study of a poor agricultural area, it was found that local farmers could not afford agricultural insurance costs due to their meager income, resulting in an extremely low participation rate in agricultural insurance, which affected the performance of insurance enterprises. With the increase of farmers' income, their ability to pay for agricultural insurance is enhanced, and their effective demand gradually rises (Wang, Fang & Xie, 2020). Through cross-regional empirical analysis, it is pointed out that in economically developed regions, farmers' income level is higher, and the participation rate and guarantee amount of agricultural insurance are correspondingly higher, indicating that farmers' income level is positively correlated with agricultural insurance performance (Zhang, 2020).

Farmers' risk awareness is crucial to the formation of effective demand for agricultural insurance. Many scholars have paid attention to this factor and conducted in-depth research. Through questionnaire survey, it is found that farmers' cognition of agricultural production risks varies greatly, and those farmers who have a clear understanding of risks such as natural disasters and market fluctuations are more willing to buy agricultural insurance (Li, 2020). For example, farmers in areas experiencing heavy natural disasters or sharp fluctuations in market prices tend to have a strong sense of risk and a stronger willingness to buy agricultural insurance, thus improving the performance of local agricultural insurance. On the contrary, farmers in some traditional

agricultural areas are in a relatively stable production environment for a long time, with weak risk awareness and insufficient demand for agricultural insurance, which limits the development and performance improvement of agricultural insurance in these areas.

The price of insurance products, that is, the premium rate and the guarantee degree, directly affect the effective demand of farmers for agricultural insurance. The study points out that the high rate of agricultural insurance is an important reason for the low enthusiasm of farmers in some areas. The high rate increases the insurance cost of farmers, which exceeds the range of their risk-based expectations, and reduces the effective demand for agricultural insurance. At the same time, the degree of protection of insurance products cannot be ignored. If the coverage is narrow and the amount of compensation is limited, farmers will think that the cost of buying insurance is not high, thus reducing demand. The research on the market response of agricultural insurance products with different levels of insurance shows that the degree of insurance is positively correlated with the purchase intention of farmers, and reasonable design of the price and degree of insurance products can effectively improve the performance of agricultural insurance (Zhen, 2010).

2.1.1.2 Stakeholder theory:

Freeman in 1984 gave the classic definition of stakeholders: stakeholders are those individuals or groups who can influence or be influenced by the achievement of a firm's objectives. Clarkson et al. in 1994 suggested that stakeholders are those who bear some form of risk or take risks because they have invested some physical, human, or financial capital or something of value in the firm. Some form of risk or who take risks because of the activities of the business. The core idea of stakeholder theory is that the organization should balance the requirements of each stakeholder's interests in an integrated manner and not only focus on the interests of one party. Business managers should understand and respect all individuals who are closely involved in the organization's actions and outcomes and try to meet their needs (An, 2023).

Agricultural insurance involves multiple stakeholders (stakeholders), including farmers, insurance companies, governments, financial institutions, and non-governmental organizations (NGOs). The direct participants in agricultural insurance mainly include insurance companies, insured farmers, and government departments, and these three groups are the core stakeholders. (Mo, 2021). The benefits generated by agricultural insurance are also mainly obtained by these three groups, and the total social benefits of agricultural insurance can be obtained by summing up the benefits obtained by each of them (Hou, 2021).

The total benefit R of agricultural insurance can be expressed as follows:

$$R = R_f + R_c + R_g$$

Farmers are the main beneficiaries of agricultural insurance, and the benefits of farmers mainly come from two aspects: transferring the risks brought by agricultural production and the losses caused by natural disasters through the purchase of agricultural insurance; and the decline in risk, which brings additional benefits to improve production technology, expand the scale of production, and increase production. (Wang, 2022). Farmers take out insurance in order to guarantee their income in case of production reduction or man-made or even natural disasters. The motivation for them to participate in agricultural insurance is based on two factors: First, when farmers participate in agricultural insurance, the operational risk is reduced, the income becomes more stable, and the future life is better guaranteed. The second aspect is the risk of agriculture. If the risk of engaging in agricultural production is reduced, the income of farmers will increase, which will induce farmers to expand the planting scale and increase the production volume, thus prompting more production data to be put into food production (Ning, 2024). However, the inflexible demand for agricultural products has led to a sharp increase in food production, leading to a fall in agricultural prices. If production exceeds a certain threshold, production will grow more slowly than prices will fall, resulting in a decline in farmers' incomes. Two factors exist simultaneously, which affect the performance of agricultural insurance. With the price

of agricultural products falling, farmers will continue to increase their insurance coverage for agricultural insurance in order to reduce risks, thus improving the performance of agricultural insurance (Ma tian, 2019). The above two factors can be grouped into farmers' agricultural insurance awareness (AAI) and risk perception ability. Many scholars also believe that agricultural insurance awareness has a positive correlation with agricultural insurance performance.

The interests of insurance companies lie in stable profits; optimization of business structure. (Jia, 2018). For insurance companies, the original intention of developing agricultural insurance is to gain benefits (Hou, 2018). Profit maximization is the ultimate goal of all commercial enterprises. The diversification of insurance capital sources is of great significance to realize the risk diversification of insurance companies. However, the insurance industry has certain operational risks, so carrying out agricultural insurance can also optimize the business structure of the company, but only in the case of insurance. When a company operates agricultural insurance, it must have a profit, at least to ensure that it will not lose money, because a money-losing business will not bring profits to the company. From the perspective of enterprises, the ultimate purpose of optimizing enterprise structure is to reduce the operational risks of enterprises, obtain more profits for enterprises, and create sufficient and stable profits (Wan & Tao, 2019). Therefore, the main income for the insurance company is the profit brought by the operation of agricultural insurance. For insurance companies, the improvement of operating profits of insurance companies is nothing more than that farmers buy more insurance, increase operating income and reduce operating costs. Whether farmers buy insurance from enterprises determines whether the insurance types of audit insurance companies can meet their own needs and whether farmers can bear the premium expenses. Therefore, in order to increase income and achieve considerable profits, agricultural insurance companies will constantly innovate insurance forms, optimize product design, and constantly improve the service level of enterprises, so as to facilitate the company to obtain more insurance performance.

The interests of the government lie in guaranteeing the safety of agricultural production and food security, promoting agricultural stability and sustainable economic development; ensuring the stability of farmers' income; reducing the number of people in poverty due to disasters and maintaining social stability. (Tuo, & Zhang, 2018). For the government, the benefits of agricultural insurance are mainly reflected in the following points: First, to prevent the impact of natural disasters and ensure food production security. The second is to ensure the stability of farmers' income, which is reflected in the government-led call for farmers to participate in wheat subsidies and corn subsidies, to avoid the decline in farmers' income caused by grain reduction and "low grain prices hurting farmers", and to reduce the incidence of rural poverty, which has a certain impact on maintaining social stability. The performance obtained by the government from agricultural insurance is the combined effect of the above two points. For the government, stable income of farmers and stable social environment are the most favorable social performance (Wang, Fang & Fu, 2020). In order to obtain the performance in this aspect, the government will provide certain policy support to insurance companies to a certain extent to promote the improvement of the performance of insurance companies. At the same time, it also actively selects insurance types that are more beneficial to farmers, which scholars define as GS-policy subsidies and regulatory support. Achieve three stakeholder performance optimizations.

Under the stakeholder theory, the key is to balance the trade-offs and conflicts between different stakeholders in order to promote the healthy development of the agricultural insurance market.

2.1.1.3 Theory of welfare economics:

Theory of Welfare Economics, Welfare Economics is an important part of modern Western economic theory, where welfare refers to social welfare. The core is to improve the welfare of the whole society by increasing the efficiency of resource allocation and promoting distributional equity (Cecil & Pigou, 1920). The theory of welfare economics argues the necessity of the state to organize social welfare and the

policy measures that the government should take, which provides a theoretical basis for the state to establish a welfare economic system, as well as a theoretical basis for the implementation of agricultural insurance (Wang, 2020).

The utility theory in welfare economics emphasizes the utility maximization of individual decisions (Chen, 2023). In agricultural insurance, farmers buy insurance in order to minimize losses and maximize utility when facing agricultural risks. The government contributes to the maximization of utility through policy and market design (Hou, 2021).

Risks such as natural disasters and climate change are uncertain. Agricultural insurance transfers the risk of uncertainty, which most farmers are involved in, to improve overall social welfare (Chen, 2023).

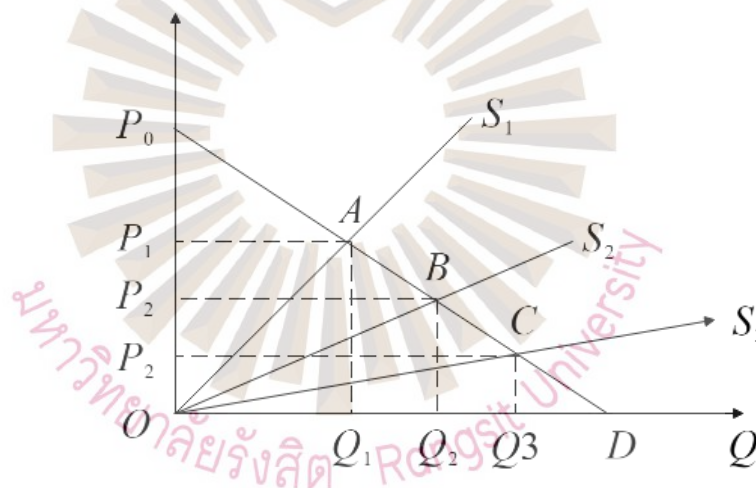


Figure 2.2 Agricultural Insurance Consumer Residual Benefits Chart

Source: Chen, 2023

As shown in the figure, assume that in the absence of agricultural insurance, the supply curve of agricultural products is S_1 , the demand curve is D , at this time the consumer surplus is P_0AP_1 , the producer surplus is P_1AO . after the purchase of agricultural insurance, farmers will pay premiums, etc., increasing the cost of supply, but because agricultural insurance helps to increase the supply of agricultural products, which reduces the price of agricultural products, the supply curve shifted to the right

lower. Assuming that the shifted supply curve is S_2 , then, the equilibrium price of agricultural products decreases from P_1 to P_2 . Consumers receive excess surplus, which is the net increase in consumer surplus P_1ABP_2 , and the change in price changes producers' surplus from P_1AO to P_2BO . The net welfare received by producers is P_2BO minus P_1AO , and the difference may be positive or negative. Consumers receive a net welfare of P_1ABP_2 . However, for society as a whole, the increment in social welfare (the area of ΔABO) is always positive, suggesting that the introduction of agricultural insurance increases the level of welfare for society as a whole.

With an increase in agricultural insurance subsidies, the cost of agricultural insurance to farmers is reduced. The agricultural insurance subsidy causes the supply curve to shift further down to S_3 , equilibrium output to increase to Q_3 , and prices to decrease to P_3 . The increment in social welfare becomes the area of ΔBCO .

From the perspective of farmers' welfare, agricultural insurance can provide economic compensation for farmers when disasters occur according to the welfare theory, reduce the risk of farmers returning to poverty due to disasters, stabilize farmers' income and guarantee their basic living welfare. For example, scholars such as Guozhu and others point out that agricultural insurance can make up for farmers' losses and maintain their reproduction capacity after crop disasters, reflecting the maintenance of individual welfare of farmers (Chang, Ren, Gao, Zhou & Zhao, 2023).

From the social welfare level, agricultural insurance can stabilize agricultural production by spreading agricultural risks, and then ensure the stable supply of agricultural products. When the uncertainty of agricultural production is reduced, the food security of the whole society is strengthened, and the price is more stable, which promotes the improvement of social welfare. Studies have shown that agricultural insurance plays an irreplaceable role in ensuring national food security and social stability (Fu, Li & Ruan, 2023).

In terms of resource allocation, agricultural insurance under the welfare theory can guide funds to flow to the agricultural field. In order to reduce the risk of payment, insurance companies will encourage farmers to adopt disaster prevention and mitigation technologies to promote the efficient use of agricultural resources. According to relevant studies, after the implementation of agricultural insurance in some areas, farmers' willingness to invest in agricultural infrastructure and new technologies has increased (Hu, 2022).

However, the practice of welfare theory in agricultural insurance also faces challenges. For example, the design of insurance products may not accurately meet the needs of different farmer groups, resulting in unbalanced welfare distribution. Some studies suggest that differentiated insurance products should be designed according to stratification of farmers' income (Luo & Zhu, 2022).

Taken together, the theory of welfare economics provides guidance in the interactions between governments, markets, and farmers to achieve the effective functioning of agricultural insurance and the improvement of social welfare.

2.1.2 Concepts

2.1.2.1 Agricultural insurance:

Agricultural Insurance Regulation Definition : agricultural insurance refers to the insurance activity in which the insurance organization bears the responsibility of compensating the insurance premiums for the insured's property losses caused by the agreed natural disasters, accidents, epidemics, diseases, and other insurance accidents in the production of planting, forestry, animal husbandry, and fisheries, in accordance with the contract of agricultural insurance. (The Central People's Government of the People's Republic of China, 2012).

Agricultural insurance is a risk management system that provides risk protection for agricultural (planting and farming). production. (Li, 2018).

2.1.2.2 Policy agricultural insurance:

Policy agricultural insurance refers to the type of insurance that the state gives agricultural protection from the perspective of policy, policy agricultural insurance can promote the development of agriculture and rural economy, provide subsidies for the main body involved in policy agricultural insurance, and the government participates in the process of agricultural insurance risk allocation.

Policy agricultural insurance is an important policy tool for financial support of agriculture and agricultural benefit, and plays an important role in maintaining the rights and interests of farmers' production and life, promoting the high-quality development of the agricultural industry, and helping rural revitalization. (Wang, 2023).

Policy agricultural insurance refers to the insurance system organized and implemented to match the government's policy of supporting and benefiting agriculture, and to promote the development of rural and agricultural economy. economic development and organize and implement the insurance system. (Li, 2018).

Policy agricultural insurance is a government-led or supported agricultural insurance program that aims to protect farmers from natural disasters, climate change, and other production risks. The following are some of the characteristics of policy agricultural insurance:

- 1) Government participation.
- 2) Universal, non-profit.
- 3) Policy agricultural insurance usually focuses on specific risks, such as natural disasters (floods, droughts, storms, etc.) and disease outbreaks.

4) multi-stakeholder cooperation: implementing a policy agricultural insurance program may involve cooperation with commercial insurers, international agencies, non-profit organizations, regulators, and other stakeholders.

5) Data and technology applications.

6) Long-term sustainability: Governments may be committed to ensuring the long-term sustainability of policy agricultural insurance programs in order to provide farmers with stable risk protection.

2.1.2.3 Policy Agricultural Insurance Performance:

The term performance was originally derived from human resource management. The word "performance" means achievement and "effectiveness" means efficiency and effectiveness. (Feng, 2004). Achievement is the effect as well as the gain obtained from doing something, which is used to recognize the work performed; efficiency refers to the meaning and value brought by the work, that is, the impact and consequences after the fact. (Li, 2018), believes that performance is the comparison between effect and efficacy, efficacy is the expected result, effect is the result of realization, that is, efficacy is the direction (goal). determined at the beginning of the policy or event carried out, and efficiency is the direct ratio relationship between effect and input. Performance is the output and effect of an activity or behavior within a specific time period. (Bao & Zhang, 2019). Mo Shijing believes that performance is the result of various actions taken by an organization or individual to achieve a certain goal. (Mo, 2021).

But performance assessment is subjective and the failure of performance assessment research to provide reliable and valid methods of judging performance has called the results into question. (Murphy, 2020). Performance focuses not only on qualitative indicators but also on quantitative indicators; on quantitative indicators but also on qualitative indicators; and on single effects but also on overall effects. The performance of policy agricultural insurance refers to the comprehensive benefits of agricultural insurance, such as economic, social and environmental, that is, the

comprehensive evaluation under the comprehensive consideration of the satisfaction of the relevant stakeholders. (Jiao, 2021). The performance of policy agricultural insurance should be viewed from the perspective of the three main stakeholders to see whether the corresponding objectives are accomplished, from the government's point of view, the goal is to stabilize the per capita disposable income of the farmers, to ensure national food security, and to promote the development of agricultural insurance; from the insurance company's point of view, as with any commercial company, the primary goal is to be able to make a profit, to expand the scale of the insurance business, and to have further development of the insurance company. From the perspective of the insurance company, like any commercial company, its primary goal is whether it can make profit, whether the scale of insurance business can be expanded, and whether the insurance company can have further development; from the perspective of the main body of the insurance, the primary goal of the farmers is to be able to obtain compensation in time after the occurrence of insurance accidents, reduce losses, and thus diversify their own risks. Wang, 2023). The internationally recognized "Three E's Model" evaluates government performance in terms of economy, efficiency and effectiveness. (Mo, 2021). Macroeconomic development, insurance companies, the government's behavior of the two main subjects whether the synergy strongly affects the agricultural insurance policy to support and benefit agriculture whether effective landing, the demand side of the farmers are satisfied, which is the core of the performance of agricultural insurance (The Central People's Government of the People's Republic of China, 2012).

In this paper, "policy agricultural insurance performance" refers to the government, farmers, insurance companies at the time of the characteristics of the corresponding objectives of the effectiveness and efficiency of the embodiment.

2.2 Relationships among variables

Policy Agricultural Insurance (AIP) plays a crucial role in mitigating risks for farmers, promoting agricultural sustainability, and stabilizing rural economies (Zhou,

Jia, Wan, Zheng, & Chen 2023). Government Policy Support (GPS) refers to the assistance provided by the government to agricultural insurance through financial subsidies, legislative backing, and policy incentives. Farmers' Effective Demand (EDP) denotes the actual demand for agricultural insurance from farmers, encompassing their level of awareness, economic capacity, and preferences for risk coverage. Insurance Company Supply (ISC) pertains to the agricultural insurance products offered by insurance companies, including the variety of products, quality of services, and premium structures. Agricultural Insurance Performance (AIP) refers to the effectiveness of agricultural insurance in enhancing the resilience of agriculture and promoting agricultural development, typically measured by coverage rates, payout efficiency, and farmer satisfaction.

In Guangdong Province, the outcomes of AIP indicate that AIP is influenced by the interactive effects of multiple factors, including GPS, EDP, and ISC (Zheng Bailin, 2016). This section will provide a detailed analysis of these factors, exploring their independent impacts and dynamic relationships on AIP (Rong, Xinlan, & Yuguang, 2013; Haiming, 2018).

2.2.1 Government Policy Support and Its Influence on AIP

Policy support is the system guarantee of agricultural insurance development. By formulating laws, regulations and policy frameworks related to agricultural insurance, the government has clarified the operating mechanism and management requirements of insurance products, providing a stable institutional environment for the insurance market. The research shows that the policy clarity and stability directly affect the participation willingness of insurance companies and the insurance enthusiasm of farmers. (Smith& Glauber, 2012).

Financial subsidy is one of the core measures of the government to support agricultural insurance, which is mainly reflected in the direct subsidy of farmers' premiums. Subsidies not only lower the threshold for farmers to participate in insurance,

but also improve the coverage and penetration rate of agricultural insurance. (Zhao & Lin, 2020). However, the study points out that excessive subsidy levels can lead to moral hazard for insurance companies or an imbalance in resource allocation. (Goodwin & Smith, 2013).

Farmers' cognition and understanding of agricultural insurance is one of the important factors affecting the participation rate. Through education, publicity and promotion activities, the government can improve farmers' insurance awareness and risk management ability, so as to expand the coverage of agricultural insurance. (Gao & Zhang, 2019).

Government supervision is a crucial part of the agricultural insurance system. An effective supervision mechanism can regulate market behavior, prevent moral hazard, and improve the operational efficiency and credibility of agricultural insurance. The government improves the efficiency of insurance operations by supervising the compliance of insurance companies. (Mahul & Stutley, 2010).

Government Policy Support (GPS) lays the foundation for AIP improvement by providing systematic and stable policies, subsidies and regulation. As shown in Figure 2.3

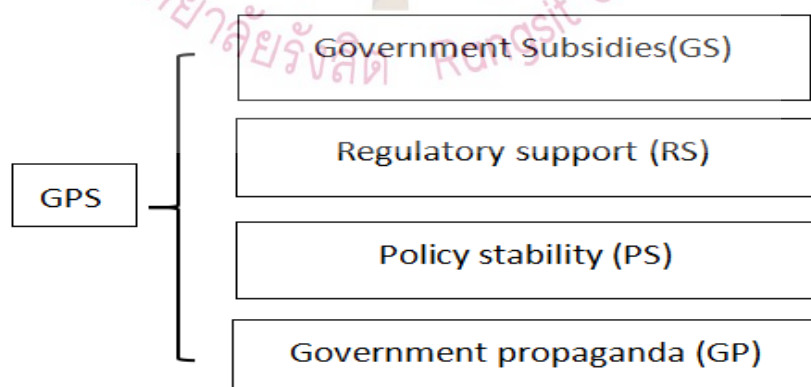


Figure 2.3 Government Policy Support

Source: Smith & Glauber, 2012

GPS affects AIP through the following mechanisms:

1) Government Subsidies (GS):

Agricultural insurance needs government intervention to provide financial subsidies in order to promote agricultural insurance institutions to advance steadily. Choose more targeted agricultural insurance operation mode, further enhance operation efficiency, and ensure the stability and sustainability of China's agricultural insurance supply. (Santeramo, 2019; Kim et al., 2020)

Government subsidies and policy guidance exert a direct impact on the design of insurance products, their pricing structures, and the overall market strategies employed by insurers (Huang, 2012; Smith & Watts, 2009; Liu, Chen, & Zhang, 2020). These governmental interventions not only shape the competitive landscape but also dictate the parameters within which insurers operate, ultimately affecting their responsiveness to market needs.

Government financial subsidies reduce insurance premiums, increasing farmers' capacity and willingness to participate. In Guangdong Province, subsidies often target key crops to ensure broad insurance coverage and risk diversification (Wang, 2016; Liu, Chen & Zhang, 2020; Swiss Re, 2015).

Questionnaire was used to conduct regression analysis on farmers' willingness to participate in insurance, and satisfaction with the proportion of financial subsidies affected farmers' participation in insurance (Sun, 2023).

The response of crop insurance demand to premium rates varies according to the underlying level of premium subsidy (demand response becomes increasingly elastic as the rate of premium subsidy decreases). (Tsiboe, & Turner, 2023).

The GARCH model was used to explore the mechanism of agricultural insurance premium subsidy policy for alleviating the risks of bulk grain, cotton and oil agricultural products market, and it was found that government subsidies could effectively reduce their risks, thereby increasing insurance transactions and improving insurance performance (Wang, Pan & Liu, 2022).

The response of crop insurance demand to premium rates varies according to the base level of premium subsidies (demand response becomes more flexible as premium subsidy rates decrease). (Tsiboe, & Turner, 2023).

In summary, we can see the influence mechanism of GS on AIP. As shown in Figure 2.4, government financial subsidies reduce the agricultural insurance premiums paid by farmers, stimulate the effective demand of farmers and improve the performance of agricultural insurance.

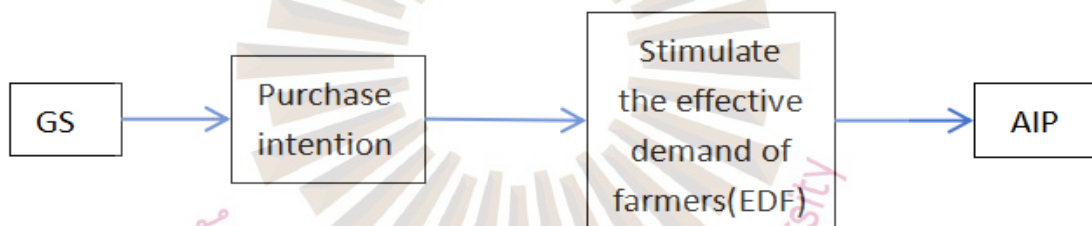


Figure 2.4 GS influence mechanism diagram

Source: Researcher

2) Regulatory support (RS):

Government regulation is a necessary condition to ensure the steady development of China's agricultural insurance industry and its market. The supervision of agricultural insurance mainly includes the supervision of agricultural insurance institutions and their agents and their behaviors, the supervision of the government and the government's support behavior for agricultural insurance, the supervision of adverse selection and moral hazard problems that may occur in insured farmers, the supervision of the selection of agricultural insurance types, the formulation of the terms of main

insurance types and the determination of insurance rates. Several aspects. Government guidance has promoted the development of scientific and technological productivity and the coordination of interests of various parties. (Li, 2023).

In view of the government regulatory support involved in stakeholder theory, many scholars believe that effective governmental regulatory support can improve farmers' trust in agricultural insurance, further promote the formation of more insurance transactions, and improve insurance performance. (Tuo, 2023) believes that an effective agricultural insurance market can only be created by combining strict regulation with insurance performance assessment. Similarly, Tuo found in 2021 that the insurance regulation regulates the order of the agricultural insurance market, protects the legitimate rights and interests of farmers, and guarantees the implementation of the policy of supporting farmers and benefiting farmers. Therefore, it is necessary to strengthen the construction of the agricultural insurance supervision system. On the contrary, due to the lack of supervision, local governments may reduce the proportion of subsidies for agricultural insurance products and reduce the types of subsidized insurance due to financial pressure (Niu et al., 2020), which will have a serious adverse impact on the sustained operation of the agricultural insurance market. The special "voice" of local governments reduces the resilience of the agricultural insurance market. The local financial pressure will have an impact on improving the coverage rate of agricultural insurance, enriching the insurance system and improving the risk prevention ability. (Wei, Chen, Niu & Li, 2023). It can be seen that in order to improve the level of insurance performance, strengthening government supervision is an important indicator.

In summary, we can see the influence mechanism of RS on AIP. As shown in Figure 2.5, government regulation can reduce the elasticity of agricultural insurance market, expand insurance coverage, enrich insurance market products, and thus improve insurance performance.

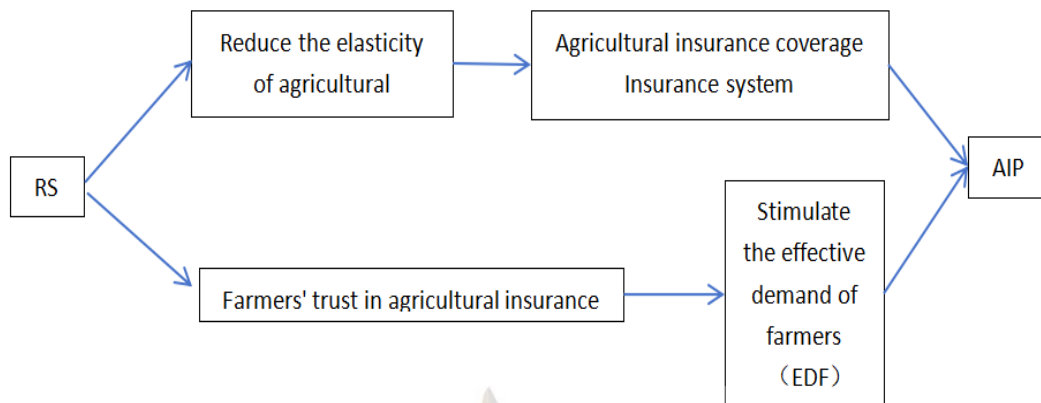


Figure 2.5 RS influence mechanism diagram

Source: Researcher

3) Policy stability (PS):

The healthy development of agricultural insurance cannot be separated from the support of relevant laws and regulations. In November 2012, China's first agricultural insurance regulation "Agricultural Insurance Regulations" was issued in the form of a State Council order. In February 2016, The State Council revised the Agricultural Insurance Regulations for the first time. It clarifies the nature of agricultural insurance and establishes the institutional framework of agricultural insurance in China. It clarified the basic norms and operation subjects, operation rules and legal responsibilities of agricultural insurance, gradually improved the scope and level of protection of agricultural insurance, and promoted the application and development of agricultural insurance technology. (Tuo, Wang & Zhu, 2023).

In 2016, the Ministry of Finance of the People's Republic of China issued the Measures for the Administration of Central Financial Agricultural Insurance Premium Subsidies, which further standardized the budget management and allocation process of subsidy funds, added the content of examining and approving responsibilities, introduced "no indemnity preferential treatment" and other provisions to encourage rural households to take out insurance, standardized the behavior of intermediary institutions, and guided insurance companies to reduce insurance rates. Strengthen

underwriting claims management, and constantly improve the level of protection and service quality.

In 2019, the Ministry of Finance, PRC, based on improving the modern agricultural support and protection system and consolidating agricultural insurance, issued the Guiding Opinions on the High-quality Development of Agricultural Insurance with the goal of serving the development of modern agriculture, promoting rural revitalization, improving rural social governance, and guaranteeing farmers' benefits. It puts forward the basic principles, main objectives, guiding ideology and safeguard measures for accelerating the development of high-quality agricultural insurance, which promote the reform of agricultural insurance in our country and become the basic policy guide for carrying out agricultural insurance work.

In 2021, the Ministry of Finance of the People's Republic of China's Measures for the Administration of Central Financial Agricultural Insurance Premium Subsidies comprehensively clarified the central financial expenditure responsibility for agricultural insurance premium subsidies, and raised it into a system to improve the resilience to natural disaster risks, ensure the income of farmers, improve the enthusiasm of agricultural production, and improve the agricultural support and protection system. It is of great significance to better serve and ensure national food security. And put forward 16 premium subsidy schemes for bulk agricultural products insurance and local advantageous characteristic agricultural products insurance, and maintain the proportion of premium subsidy basically stable, unify the proportion of local planting industry subsidy, optimize the allocation of local advantageous characteristic agricultural products insurance award and subsidy funds.

The reform and improvement of the system and mechanism are conducive to expanding the coverage rate of agricultural insurance, reducing the corruption of the grass-roots government, and improving the operation quality and market efficiency of agricultural insurance. (Tuo, 2023).

In order to ensure the healthy and orderly operation of local agricultural insurance, it is necessary to issue special laws and regulations in the form of local legislation to further improve the agricultural insurance system. In order to enhance the initiative of agricultural insurance institutions, we must first enhance the confidence of agricultural insurance institutions, so that agricultural insurance institutions can have a long-term stable expectation, that is, they can operate in the same mode in the same region in the foreseeable period of time. It is an effective way to realize this expectation to introduce laws and regulations suitable for local agricultural insurance as soon as possible. (Li, 2023).

Agricultural insurance regulations provide technical support for product development and rate adjustment of insurance institutions. Establish a scientific dynamic adjustment mechanism for insurance rates, realize differentiated pricing based on regional risks, and truly reflect the risk status of agricultural production. (Tuo, 2020).

China's agricultural insurance has a good momentum of development and develops rapidly, but there are still many problems to be solved. Only through improving the agricultural insurance system, rationalizing the agricultural insurance system mechanism, promoting the insurance institutions in compliance management and "intensive cultivation" efforts, the development of agricultural insurance in our country will be a higher level. (Tuo, 2023).

The perfection and improvement of agricultural insurance laws and regulations will help improve farmers' satisfaction, make agricultural insurance operation more standardized, service more optimized, and guarantee more powerful, so that agricultural insurance can truly benefit farmers. The perfect agricultural insurance subsidy system, the gradual improvement of agricultural insurance subsidy methods, ensuring the adequacy of subsidy funds, the perfection of subsidy methods, and giving full play to the positive effect of the long-term mechanism of subsidies have determined the development speed and quality of policy agricultural insurance. Improve the efficiency guarantee mechanism of agricultural insurance subsidies, increase insurance

demand, stimulate insurance supply and expand the coverage of agricultural insurance. We will improve the policy agricultural insurance system and mechanism, better meet the growing risk protection needs of farmers, and ensure the high-quality development of agricultural insurance and serve rural revitalization from various aspects such as underwriting, claims settlement, business conditions, and product supervision. (Huang, 2023).

If policy agricultural insurance wants to develop stably, it must be guaranteed by relevant legal system. The establishment of perfect supervision, fiscal and tax incentives, reinsurance system and legal system will play a greater role and value in promoting China's agricultural development and protecting the rights and interests of agricultural insurance producers. (Ma, 2022).

GPS establishes guidelines for product development, operations, and claims management. These frameworks mitigate market uncertainties and conflicts, improving the operational efficiency and credibility of the insurance system, which subsequently enhances AIP (Li & Ren, 2018; Huang, 2012).

In summary, we can see the influence mechanism of PS on AIP. As shown in Figure 2.6, the government's stable system increases the information of insurance companies, provides support for product development and rate setting, and thus improves insurance performance. The stable system of the government can improve the satisfaction of farmers and increase the demand of farmers, thus improving the insurance performance.

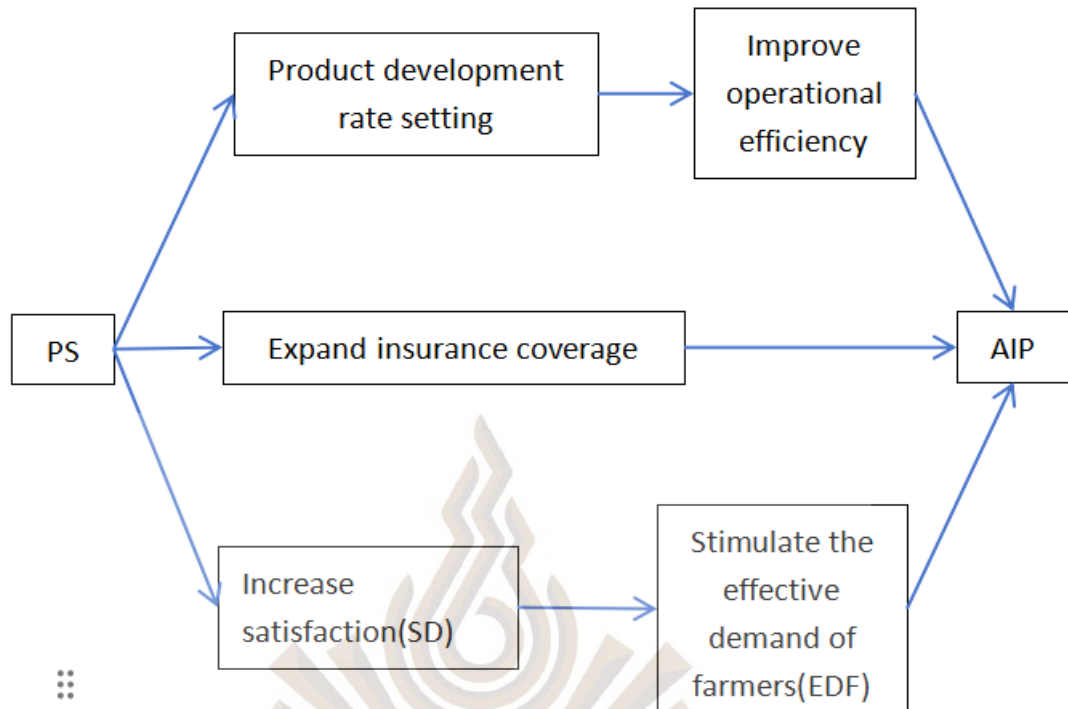


Figure 2.6 PS influence mechanism diagram

Source: Researcher

4) Government propaganda (GP):

In China, most of the farmers are between 40 and 60 years old, and their knowledge level is basically kept in middle school or high school. The limited knowledge reserve makes them have a certain resistance to insurance, which is also an important factor affecting the development of the insurance industry. Chinese farmers rarely buy commercial insurance for agricultural products, most of them buy government-supported wheat subsidies and corn subsidies, compared with commercial insurance institutions, they are more inclined to trust the government. Therefore, giving full play to the publicity role of the government has a positive effect on improving the performance of agricultural insurance.

The research on the relationship between insurance publicity and purchasing intention shows that herders with a higher degree of publicity, such as those who have received household publicity, are more likely to buy weather index insurance for meat

sheep than those who have received leaflets (Gong, 2021).

Combined with the interview survey, it is found that the implementation deviation of policy agricultural insurance in S District is caused by the inadequate policy publicity of the main body of policy implementation. (Sun, 2023).

studied farmers' demand willingness to purchase agricultural insurance and its influencing factors in Henan Province, and the results showed that the publicity of agricultural insurance would significantly affect farmers' demand willingness to purchase agricultural insurance. (Hui,2016).

Agricultural extension services are significantly related to farmers' decisions to purchase crop insurance. (Fahad et al., 2018).

The opportunities and acceptability of small farmers to obtain agricultural insurance are low and scarce, and the inadequate publicity of agricultural insurance products affects the acceptability and accessibility of agricultural insurance. (Ankrah, Kwapong,Eghan, Adarkwah,& Boateng-Gyambiby, 2021).

In summary, we can see the mechanism of GP's influence on AIP. As shown in Figure 2.7, government propaganda increases farmers' purchase intention and stimulates their effective demand, thus improving insurance performance.

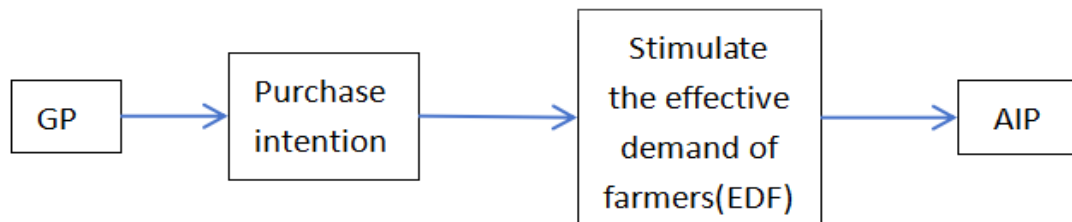


Figure 2.7 GP influence mechanism diagram

Source: Researcher

2.2.2 Insurance Supply Capacity (ISC) and Its Contribution to AIP:

Insurance Supply Capacity (ISC) includes a range of product designs, premium reasonableness, claim reasonableness, and service levels provided by insurance companies to effectively address the specific needs of agricultural insurance.

Insurance supply capacity is the unification of a series of related processes such as types of agricultural insurance, premiums, and the convenience of farmers' claims. When constructing the performance evaluation system of policy-based agricultural insurance, the performance at the internal process level is measured by four indicators: coverage rate of subsidized insurance, standard degree of business process, loss loss rate and premium. The results show that the internal process evaluation score is 78.1, which has a significant impact on the performance of agricultural insurance (Li, 2020).

Taking Shouguang City, Shandong Province as the sample object, based on the analysis perspective of insurance perception, the Stata model was used to explain the research hypothesis, and it was concluded that the price of agricultural insurance products had an impact on the supply of agricultural insurance. (Hao, 2017).

The type of insurance products is one of the main standard indexes to evaluate the supply capacity of agricultural insurance companies. (Fang& Jiang, 2021).

The evaluation of the supply capacity of insurance companies should be discussed from the aspects of claim efficiency, customer service level, information transparency and support for farmers' compensation. (Chen & Gao, 2018).

Taking the performance evaluation of agricultural insurance under Chongqing's land reclamation economy as the entry point, it is proved that the factors of insurance itself, such as the intensity of claim and premium, can indeed affect the

purchase intention of farmers (Huang & Wang, 2019).

A reasonable premium pricing mechanism can balance the income of agricultural insurance companies with sustainable operations, and attract more capital and resources into the agricultural insurance market. (Gao & Chen, 2020).

The efficient claim settlement mechanism has a positive effect on the promotion of the reputation of agricultural insurance companies and the expansion of their market share, which increases the supply capacity to the market. (Smith & Glauber, 2012).

According to the literature, the supply capacity assessment of agricultural insurance companies can be carried out from four aspects, as shown in Figure 2.8 product design, premium affordability, claim reasonability, and service level.

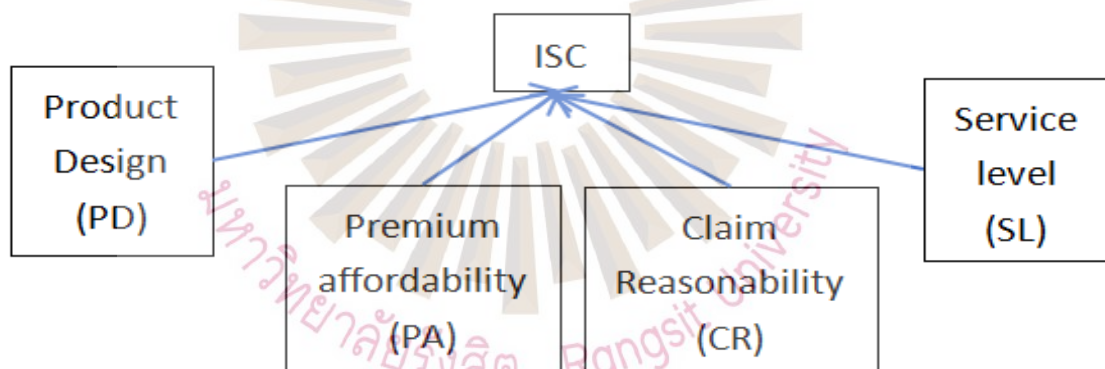


Figure 2.8 Agricultural insurance supply capacity

Source: Researcher

Generally speaking, the more types of agricultural insurance, the greater the choice of farmers, the more likely to buy; Similarly, since China's existing agricultural production is basically small-scale agricultural production of family units, the labor cost of agricultural planting is high, the initial price of agricultural products is low, and the lower profit margin will encourage farmers to choose agricultural insurance with lower premiums or not to buy insurance. It can be seen that the stronger the insurance supply

capacity of commercial insurance companies and the higher the willingness of farmers to participate in insurance, the more likely they are to obtain higher insurance performance.

The influence of ISC on Agricultural Insurance Programs (AIP) can be articulated through several key dimensions:

1) Product design (CA):

From the perspectives of government, farmers and insurance companies, it was found that the diversity of insurance products had an impact on the performance of policy agricultural insurance in Heilongjiang Province. (Hou,2018).

Taking Shouguang City of Shandong Province as the sample object, based on the analysis perspective of insurance perception, Stata model was used to explain the research hypothesis, and it was found that insurance types and insurance coverage had an impact on agricultural insurance performance. (Hao,2017).

One of the factors affecting the performance of agricultural insurance is the limited product. (Alam,Begum,Masud,, Al-Amin & Leal Filho, 2020).

Taking 363 family farms in Xinjiang as survey objects, the binary Logistic model was used to analyze that the satisfaction degree of agricultural insurance products was a significant factor affecting the satisfaction degree of Xinjiang family farms on agricultural insurance. (Zhao & Cheng, 2023).

Farmers prefer insurance policies with low insurance capital, low deductibles and short contract terms. Farmers' socio-economic characteristics determine their preference to buy agricultural insurance. (Gómez-Limón & Granado-Díaz,2023).

From the management characteristics of insurance companies, the degree to which insurance products meet the needs of farmers is positively related to the insurance behavior of agricultural insurance. (Chao & Yang, 2019).

2) Premium Affordability (PA):

The insurance amount of farmers affects the overall satisfaction of farmers with agricultural insurance and thus affects the insurance performance. (Wu, 2018).

It is found that the factor affecting the performance of agricultural insurance is the premium income of agricultural insurance. (Wang, 2023).

Based on the theoretical perspective of perceived value, combined with the survey of farmers' satisfaction with agricultural insurance in the study area, using the ordered Logistic model, the research results show that farmers' perception of insurance costs affects their satisfaction with agricultural insurance. (Cheng & Du, 2018).

Based on the two perspectives of planting industry and aquaculture industry, this paper makes an empirical study with the time series Tobit model, and finds that agricultural insurance premium income has a significant positive impact on the level of agricultural insurance guarantee (Wang, 2022).

3) Claim Reasonability (CR):

Using questionnaires, regression analysis was conducted on farmers' intention to participate in insurance, and combined with Smith theory, it was found that farmers' satisfaction with insurance company's claim amount affected farmers' participation in insurance (Sun, 2023).

The study found that the factor affecting the performance of agricultural insurance was the payment of agricultural insurance claims (Wang, 2023).

In terms of the management characteristics of insurance companies, the degree of trust (Chao & Yang, 2019), the timeliness of insurance company's risk survey and the rationality of loss settlement (Zheng & Zhao, 2017) are all positively correlated with the insurance insurance behavior.

The rate of damage assessment, the rate at which insurance companies pay out affects farmers' overall satisfaction with agricultural insurance. (Wu, 2018).

Took Shouguang City, Shandong Province as the sample object, explained the research hypothesis with the help of Stata model based on the analysis of insurance perception, and the claim amount was a significant influencing factor. He suggested that the publicity means of agricultural insurance should be continuously improved, the communication channels should be broadened, farmers' understanding of insurance knowledge should be enhanced, and agricultural insurance talents should be continuously cultivated. (Hao, 2017).

Taking Shouguang City of Shandong Province as the sample object, based on the analysis perspective of insurance perception, the Stata model was used to explain the research hypothesis, and it was found that the claim amount was a significant factor affecting the purchase of agricultural insurance by farmers. (Hao, 2017).

The level of agricultural insurance compensation has a significant positive impact on the level of agricultural insurance protection (Wang, 2022).

analyzed the change of the loss rate of agricultural insurance companies by applying the production function of Coggangulas, and concluded that the added value of agriculture is positively correlated with the premium income, so it can be seen that the compensation level of agricultural insurance companies to farmers is very important to expand the demand of agricultural insurance. (Tuo, 2019).

4) Service level (SL):

Based on the theoretical perspective of perceived value, the research results show that farmers' satisfaction is jointly affected by perceived service value, perceived function value and perceived cost. (Cheng & Du, 2018).

In terms of insurance services, the service quality of agricultural insurance (Ghosh, Gupta & Singh, 2020) has a significant impact on the insurance intention of agricultural insurance.

Taking 363 family farms in Xinjiang as survey objects, the binary Logistic model was used to analyze that the service of agricultural insurance company was a significant factor affecting the satisfaction of Xinjiang family farms with agricultural insurance. (Zhao & Cheng, 2023).

The regression analysis of farmers' willingness to participate in insurance was conducted by using questionnaire method, and combined with Smith's theory, the influence of insurance convenience and insurance company's satisfaction with claims service on farmers' willingness to participate in insurance was found. (Sun, 2023).

The demand rate of farmers is positively correlated with the convenience of the policy agricultural insurance process. The more convenient the process is, the higher the demand rate of policy agricultural insurance is. Whether insurance claims and other services are convenient and fast (Wang, 2016) has a significant impact on the insurance willingness of agricultural insurance.

From the three perspectives of the government, farmers and insurance companies, the factors affecting the performance of policy agricultural insurance in Heilongjiang Province were discussed from the aspects of the supply capacity of insurance companies, the effective demand of farmers and the guarantee capacity of the government. The claim settlement speed and network distance of policy agricultural

insurance had an impact on them. (Hou, 2018).

In summary, we can see the influence mechanism of ISC on AIP. As shown in Figure 2.9, ISC can directly affect AIP, and ISC can also affect farmers' satisfaction, increase farmers' purchase intention, stimulate farmers' effective demand, and thus improve insurance performance.

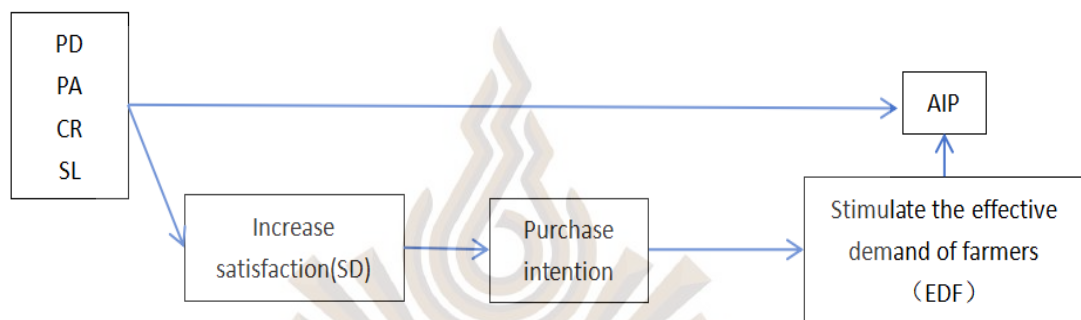


Figure 2.9 ISC influence mechanism diagram

Source: Researcher

2.2.3 Farmers' Effective Demand (EDF) and Its Role in AIP

From the subjective aspect, the performance of agricultural insurance fundamentally depends on the effective demand of farmers for this kind of insurance. Demand determines supply. The greater the demand for agricultural insurance, the more inclined farmers are to buy this kind of insurance, which will increase the performance of agricultural insurance. The study points out that farmers' effective demand for agricultural insurance directly affects their purchasing decisions, which in turn affects the coverage and performance of agricultural insurance. (Zhang, Gao, Yu & Sun, 2020).

Through the analysis of the survey data of rural households, the study found that the age, gender, income level and cognition degree of rural households significantly affected their decision-making behavior of purchasing policy-based agricultural insurance. This shows that the degree of farmers' demand for agricultural insurance directly affects their purchasing behavior, and thus affects the performance of

agricultural insurance. (Li & Qi, 2010).

This study analyzed the impact of agricultural insurance coverage on farmers' total factor productivity, and found that the improvement of agricultural insurance coverage promoted the growth of farmers' total factor productivity. This shows that farmers' demand and participation in agricultural insurance have a direct impact on agricultural production efficiency and insurance performance. (Sun, Zhang & Wu, 2022).

Farmers' Effective Demand (EDP) encompasses their capacity and willingness to engage in purchasing decisions, which are influenced by their economic capabilities, risk assessments, and comprehension of the products available to them. (Wang, 2020).

The feedback loop established by farmers serves as a catalyst for insurers to refine and optimize their products and services. In turn, the innovations introduced by insurers not only meet the evolving needs of farmers but also expand the overall demand for insurance solutions (Ma, Zhang & Peng, 2020; Luo, Wang & Zhang, 2019). This reciprocal relationship underscores the importance of collaboration between educational initiatives and insurance providers in enhancing the agricultural sector's resilience.

This concept of EDP plays a significant role in shaping Agricultural Insurance Participation (AIP) through several key mechanisms:

1) Awareness of Agricultural Insurance (AAI):

Farmers' insurance consciousness and satisfaction with products will affect farmers' subjective insurance purchasing behavior. (Tian & Zhang, 2020).

The impact of farmers' demand on agricultural insurance performance was studied from the entry point of agricultural insurance and agricultural credit in China. In the construction of the index system, farmers' insurance awareness, ability to discover expected risks and satisfaction with agricultural insurance were evaluated. It was found that the stronger farmers' insurance awareness, the stronger their ability to predict risks and the more satisfied they were with products, the more they would buy insurance products. At the same time, this rule presents a regional conclusion. With the high performance of the insurance industry in a region, farmers in this region also have a strong general insurance awareness (Wang, 2020).

Farmers' cognition of apple insurance has a positive impact on the decision of participating in apple insurance, and they have a higher understanding of Apple insurance, so they are more inclined to buy Apple insurance several times. (Sun, Luo & Shan, 2020).

Based on the survey data of Jiangsu and Henan provinces in 2015, the study investigated farmers' demand for pig price index insurance. The results showed that traditional pig insurance purchase experience and pig price risk cognition had a positive impact on farmers' purchase intention and payment intention, and farmers' cognition of pig price index insurance had a positive impact on farmers' payment intention. (Zhang, Zhan & Chen, 2017).

stata software was used to analyze the data, and the results showed that farmers' perception of vegetable price index insurance had an impact on the demand for vegetable price index insurance. (Wang, 2023).

Farmers' understanding of agricultural insurance has a significant effect on their willingness to buy agricultural insurance. (Zhao, 2023).

The study on farmers' willingness to purchase agricultural insurance and its influencing factors in Henan Province shows that the degree of understanding of

agricultural insurance can significantly affect farmers' willingness to purchase agricultural insurance. (Hui, 2016).

It is believed that farmers' insurance knowledge is very important for the purchase of agricultural insurance. In addition, she noted that there is a "herd effect" when it comes to buying agricultural insurance. (Li, Yang & Hong, 2016).

The study found that education level, agricultural income, the proportion of natural disaster losses in agricultural income, and farmers' understanding of agricultural insurance had significant effects on their purchase intention of agricultural insurance. (Chu & Cui, 2017).

The factors affecting farmers' demand for agricultural insurance are complex and diverse, and farmers' cognition of agricultural insurance will affect farmers' demand. (Bai, 2020).

The research shows that farmers' cognition and education level of agricultural insurance are the main factors affecting the demand for agricultural insurance. (Nie & Shen, 2013).

In order to measure the real awareness of sheep weather index insurance, we set up relevant research questions on five contents: premium subsidy, covered disaster type, trigger basis of claim, insurance period and guarantee level. Cognition and expectation are consistent, and significantly positively affect the purchasing tendency and purchasing degree of herders. (Gong, 2021).

(Cole, Gine & Tobacman, 2013), (Cai, Chen & Fang, 2015) and (Takahashi, Ikegami & Sheahan, 2016) respectively According to the research on the influencing factors of weather index insurance demand, farmers' cognition of index insurance significantly affects the insurance demand.

Believes in his research that due to the complexity of index insurance, farmers and herdsman's cognition of insurance directly affects their willingness to buy index insurance, and the higher the cognition, the greater the demand for insurance. (Hill, 2013).

Using questionnaires, the regression analysis of farmers' willingness to participate in insurance was carried out, and combining with Smith theory, it was found that farmers' understanding of the policy agricultural insurance process affected farmers' participation in insurance. (Sun, 2023).

The application of the Internet can affect the different stages of the purchase of policy agricultural insurance by broadening the channels of information acquisition, enhancing risk avoidance and improving the awareness of the importance of insurance. (Qiao, Liu & Xu Tao, 2022).

Farmers' cognition of insurance affects their overall satisfaction with agricultural insurance and thus affects their performance (Wu, 2018).

Farmers' awareness of agricultural insurance has a great impact on the performance of agricultural insurance. (Xu, 2012).

Farmers' awareness of disaster risk, agricultural insurance and the role of agricultural insurance (Qin, Gu & Tian, 2016; Zhang, Hu & Zhan, 2019; Hou & Zhang, 2019).

From the perspective of cognition, the improvement of financial literacy (He & Kong, 2018) and the deepening of cognition of agricultural insurance (Long, Li, Yu & Ju, 2014) are conducive to the insurance behavior of farmers.

Objective and subjective beliefs may play a role in China's crop insurance purchasing decisions, whether objective (historical) risk or subjective (future) risk.

Insurance companies should consider farmers' "feelings" about insurance. (Fu,Zhang ,An,Zhou,Peng,Kong, & Turvey, 2022).

The awareness of insurance has positive influence on the decision of crop insurance adopted by corn farmers. (Jules, Fabrice, & Joseph,2022).

The opportunities and acceptability of small farmers to obtain agricultural insurance are low and scarce, but the lack of understanding of agricultural insurance products affects the acceptability and access of farmers to agricultural insurance. (Ankrah,Kwapong,Eghan, Adarkwah, & Boateng-Gyambiby, 2021).

2) Perception of Risk (PR):

The larger the planting scale, the greater the loss when farmers face production risks, so there will be a greater demand for apple insurance and increase the number of purchases. (Sun et al.2020).

Farmers' risk perception has a significant positive impact on their insurance participation behavior. (Wang, 2022).

Risk perception is a key variable in exploring risk management strategies (Kim & Jung, 2017).

The risk bearing capacity corresponding to the individual's high risk perception level is relatively strong, and the individual can directly bear the risk loss, thus reducing the purchase behavior of agricultural insurance. (Renko, Rodney, Shrader & Mark, 2012).

Found that the level and degree of farmers' risk perception is the premise and basis for their risk management measures. (Fang&An,2020).

concluded through empirical study that the level of risk perception has a significant impact on farmers' agricultural insurance participation behavior. (Zhao, Zheng & Zhang, 2021)

Found that the higher the level of risk perception of farmers, the more eager farmers would be to use risk management tools to manage agricultural risks. (Shang, Xiong & L, 2020).

It is concluded that the probability and degree of buying weather index insurance of meat sheep are higher for herders with greater natural risk disaster occurrence in recent three years. (Gong, 2021)

Through the research and analysis of cotton farmers, believe that farmers' demand willingness is also related to factors such as the amount of risk they can bear, their education level, planting scale and investment time. (Yan & Zhao, 2012).

The conclusion that increasing farmers' risk awareness and increasing farmers' willingness to buy insurance can be matched by increasing disposable income. (Liu & Tao, 2016).

Internet applications can enable farmers to strengthen their awareness of risk management and control, thereby enhancing their willingness to purchase agricultural insurance. (Jordan et al., 2022).

The analysis of regression results obtained the types of risk preference and the level of risk cognition. (Zhao, 2023).

Farmers' awareness of disaster risk affects their demand. (Qin et al., 2016; Zhang et al., 2019; Hou & Zhang, 2019).

The demand for insurance is significantly positively correlated with farmers' concerns about the adverse effects of climate change on their livelihoods. Farmers who expressed fatalistic views about the consequences of climate change were far less likely to choose any kind of insurance. Farmers' prospects for insurance investments also depend on their understanding of climate change risks and the effectiveness of adaptation. (Akter, Krupnik & Khanam, 2017).

Flood risk perception, agricultural extension services, and distance from rivers were significantly correlated with farmers' decisions to purchase crop insurance. (Fahad et al., 2018).

3) Satisfaction Degree (SD):

Customers like a product more, the higher the satisfaction, even if the price is slightly higher than other products, they will buy this type of product. This is the American marketing expert Professor Lauterbaum in 1990 put forward the 4C integrated marketing theory. Similarly, agricultural insurance as a commodity also applies to this theory. The more satisfied farmers are with insurance products, the more likely they are to buy insurance.

From the perspectives of the government, farmers and insurance companies, this paper discussed the factors affecting the performance of policy agricultural insurance in Heilongjiang Province from the aspects of the supply capacity of insurance companies, the effective demand of farmers and the government's guarantee ability, and concluded that farmers' satisfaction with premium subsidies of policy agricultural insurance and their overall satisfaction with policy agricultural insurance affected their performance. (Hou, 2018).

The satisfaction degree of farmers' participation in agricultural insurance has a great influence on the performance of agricultural insurance. (Xu, 2012).

Believed that the empirical analysis using the binary Logistic regression model determined that farmers' satisfaction with insurance institutions' service and farmers' insurance willingness had a significant impact. (Li, 2022).

Through the analysis of the regression result of the dependent variable "whether farmers are willing to buy agricultural insurance", the satisfaction of the service level of agricultural insurance companies, the satisfaction of government work and the trust degree of government work all have a significant impact on farmers' willingness to buy agricultural insurance. (Zhao, 2023).

In summary, we can see the influence mechanism of EDP on AIP. As shown in Figure 2.10, EDP can affect farmers' purchasing decisions and thus affect AIP. AAI, PR and SD can also stimulate farmers' effective demand by influencing farmers' purchase intention, so as to influence farmers' purchase decisions and thus affect insurance performance (AIP). The research also found that the supply capacity (ISC) of agricultural insurance also has a certain impact on the effective demand (EDP) of farmers, and the effective demand (EDP) of farmers will also have a feedback impact on the supply capacity (ISC) of insurance.

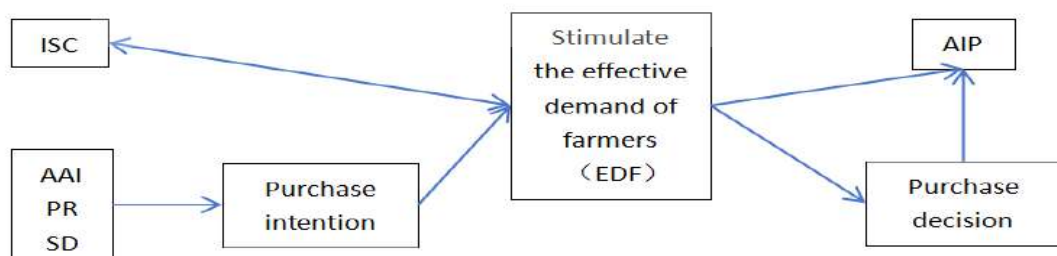


Figure 2.10 EDP influence mechanism diagram

Source: Researcher

2.2.4 Agricultural Insurance Performance (AIP):

For general performance measurement indicators, if the research is financial performance, scholars generally use return on equity; The measure index of peasant household insurance performance is the influence on agricultural economy and the financial protection provided. The impact on agricultural economy is reflected in whether farmers have any impact on agricultural planting after they participate in the insurance. The financial protection provided is reflected in how much the farmer can recover from the loss once a claim is filed, and for the insurance company, what impact the occurrence of a claim has on the company. The development of agricultural insurance in China has a positive impact on food supply security, and has always been robust and important in replacing core explanatory variables and lagging tests. (Zhang, 2024). The development of agricultural insurance has brought great benefits to agricultural development, effectively alleviating farmers' problems, and the loss caused by risks is conducive to poverty reduction to a certain extent. (Zhang, Huang, Yi & Li, 2017) We will increase food supply and ensure food security. (Wang, 2024). Agricultural insurance will also promote the advancement of agricultural technology. (Chen & Wang, 2015).

1) Impact on Agricultural Economic (IAE):

Agricultural insurance has a positive role in stabilizing the income of farmers from grain cultivation, supporting rural revitalization, and serving to guarantee food security. (Ministry of Finance, Department of Finance, 2023). In a study of agricultural insurance in major production areas, it was found that its development has positively promoted food production security, but the extent of its role is limited, and there are regional differences. (Hua & Yang, 2023). in the study of agricultural exports found that the implementation of policy agricultural insurance has a significant role in promoting the scale of plantation agricultural exports (Feng, 2019). using the entropy method of constructing indicators, found that the coupling and coordination degree of agricultural insurance and digital financial inclusion significantly increased the agricultural output

of farmers (An, He, & Zhang, 2023). Farmers who purchase crop insurance have a stronger sense of risk prevention, are more effective in using pesticide treatments, and enhance production yields. Li, Yuan, Cao, Zhao, & Guo, (2022). Farmers insured will increase the scale of cultivation, and agricultural insurance accelerates the professionalization of family farms. (Li, 2022). Agricultural insurance can restore productivity in the short term by enabling insured farmers to receive some compensation in the event of natural disasters (Zeng, Qi, & Wang, 2022). Agricultural insurance can shift farmers' attention from risk management to the introduction of high-tech production technology, and agricultural productivity increases. (Zeng, Qi, & Wang, 2022). Agricultural insurance can reduce uncertainty for farmers thereby increasing agricultural investment and vigorously pursuing agricultural technology development (Hosseini, Dourandish, Ghorbani, & Daneshvar Kakhki, 2017). Developed a threshold model, and the results showed that the effectiveness of agricultural insurance in alleviating poverty in all provinces of the country from 2010-2016 is highly related to the level of economic development (Zhu & Jiang, 2019). Agricultural insurance has a more obvious effect on alleviating relative poverty. (Yu, 2023). However, it was also found that the implementation of policy agricultural insurance does not have a significant effect on the scale of agricultural products exported from the farming industry.

It is found that the closer the township is to the city, the farmers' insurance awareness is enhanced, and the easier it is to purchase insurance. Similarly, if the insurance can better meet the needs of farmers, the more likely it is to purchase insurance. They will also buy this type of insurance at a slightly higher price (Tian & Zhang, 2020).

The development of agricultural insurance in China has a positive impact on food supply security, and it is always robust and significant in replacing core explanatory variables and lagging tests. (Zhang, 2024). The development of agricultural insurance has brought great benefits to the development of agriculture and effectively alleviated farmers' problems, The loss caused by risk is conducive to poverty reduction

to a certain extent.(Zhang, Huang, Yi, & LI, 2017) We will increase food supply and ensure food security.(Wang, 2024).Agricultural insurance will also promote the progress of agricultural technology.(Chen & Wang, 2015), promote the large-scale operation of agriculture and increase the proportion of food crop planting.(Ma & Cui, 2021), which will alleviate agricultural non-point source pollution to a certain extent and promote the development of green agriculture. Most scholars agree that the development of agricultural insurance is conducive to improving food output. Agricultural insurance can effectively expand the production scale of food crops to food crops and cash crops. As the target, the differentiated premium subsidy standard is implemented to guide farmers to adjust the planting area of different crops, so as to achieve the expansion of food production. (Zhang, Yi, Xu, & Huang, 2019). Using DEA modeling, the study found that farmers who use agricultural insurance, productivity is improved. (Zubor-Nemes, Fogarasi, Molnár, & Kemény, 2018). Agricultural insurance is a common tool for the development of green agriculture, which leads to encourage farmers to adopt green production techniques and improve production efficiency through agricultural insurance. (Li, Cao, & Guo, 2022). When the share of agricultural output exceeds 0.0125, agricultural insurance will have a significant contribution to agricultural carbon productivity. (Zhu,Yin, Yuan, & Tian, 2023). Using dynamic panel estimation and instrumental variable methods to analyze the national collection of receipts, the increase in agricultural insurance coverage in China promotes the growth of total factor productivity of farm households. (Sun, Zhang, & Wu, 2022). Agricultural insurance density plays a positive moderating role on both agricultural total factor productivity and agricultural output. The comparison group shows robustness in the index, but the elasticity coefficients are different and different. (Li, 2022). Agricultural insurance can promote China's agricultural green total factor productivity, the promotion of agricultural insurance between different regions is there is some variability. (Cui, 2023). The empirical analysis shows that agricultural insurance is mainly used to adjust the production mode of farmers by changing the scale of agricultural operation, rationally allocating the input of production factors, improving the utilization rate, and reducing the environmental pollution, so as to enhance the agro-ecological efficiency. (Liang, 2023). Agricultural insurance indirectly promotes the

green total factor productivity of agriculture by expanding the scale of agricultural business, adjusting the structure of agricultural cultivation and promoting agricultural technological innovation. (Zhou, Zheng, & Li, 2022). Constructing a comprehensive evaluation index system of agricultural insurance efficiency in agriculture, farmers and rural areas, and using a three-stage DEA model to measure the value of agricultural insurance efficiency in agriculture. It was found that environmental factors, financial support for agriculture, disaster rate and degree of agricultural mechanization have a significant impact on the efficiency of agricultural insurance to help farmers. (He, 2022).

China's agricultural insurance to support agriculture efficiency is generally high, but there are obvious regional differences, the efficiency of the northeast, central, western and eastern regions show a trend from low to high. Environmental factors have a significant impact on the efficiency of agricultural insurance support for agriculture, and after removing the impact of environmental factors, the efficiency of most provinces and regions is significantly improved, and the efficiency gap between regions is significantly reduced. (Qu & Ji, 2022). The empirical results show that the efficiency of policy agricultural insurance operation in Jilin Province has a certain gap compared with the overall level in China, and the development of agricultural insurance in the province's cities (states). is also unbalanced, and in recent years, although its operational efficiency has shown a trend of development to the good, but the average level is not high. (Ding, 2022).; (Mao, Yu, & Zhang, 2018). found through research that in 2007-2014, China's financial support for agriculture performance in the 31 provinces and regions differed significantly, and the low efficiency of pure technology hindered the improvement of China's financial support for agriculture performance, and put forward the view that the focus of the performance of financial support for agriculture expenditure should be placed on the improvement of the efficiency of fund management. Based on the background of rural revitalization, (Xu, Zheng, Yu, & Ma, 2019). studied the performance of financial support for agriculture and its influencing factors in 12 cities and states in Hubei Province, and found that the overall performance of financial support for agriculture in Hubei Province is low due to the low efficiency of scale, and that external factors such as the level of urbanization have different influencing effects

on the performance of financial support for agriculture in different regions. (Guo & Tang, 2020). evaluated the performance of financial support for agriculture in 51 counties (states). in Hunan Province.

They also found that agricultural insurance has an inhibitory effect on farmers' production efficiency and may have an impact through three paths: resource allocation, cost crowding out and moral hazard. There are differences in the impact of agricultural insurance on the production efficiency of farmers of different sizes and cultivation types, (Li, 2022).

2) Financial protection provided (FP):

In conducting a total cost insurance pilot program, it was found that not only does it promote farmers' incomes through insurance density (Zhang, Xu, Shan, Liu, & Lu, 2022). Agricultural insurance improves production techniques, increases the incomes of agricultural producers and farmers, and stabilizes farmers' production expectations. (Zeng, Qi, & Wang, 2022). Through the data of Guangdong Province, agricultural insurance density and per capita compensation are used as indicators to measure the degree of agricultural insurance development. The empirical analysis shows that the development of agricultural insurance in Guangdong Province can effectively improve the level of farmers' income. (Bhuiyan, Davit, Zeng, & Zhang, 2022). Agricultural insurance improves farmers' income through the mediation of land factor input behavior, agricultural technology selection behavior and planting structure selection behavior. (Li, 2022). Crop insurance had a significant positive impact on cocoa farmers' income in Ashanti region, and the active development of crop insurance reduced the level of poverty in the area (Agbenyo, Jiang, & Ntim-Amo, 2022). In many developing countries, crop insurance improves farm incomes, and it is an important tool for sustainable agricultural development. Foreign Language 41 (Rajeev & Nagendran, 2023).

The high guarantee level of agricultural insurance can help agricultural producers transfer production risks, mobilize the enthusiasm of agricultural production, and have a strong positive effect on farmers' income.(Yu,2018).Agricultural insurance is an effective means to resist natural disasters, disperse agricultural risks and reduce losses. Insurance companies can take necessary measures to prevent and reduce losses and reduce losses caused by natural disasters. When natural disasters occur, insurance companies can mitigate their impact on farmers' production by shifting insurance premiums. At the micro level, policy agricultural insurance also plays the function of welfare economy in poverty alleviation. (Nie, Yan, & Wang, 2013). The high guarantee level of agricultural insurance can help agricultural producers transfer production risks, mobilize the enthusiasm of agricultural production, and have a strong positive effect on farmers' income. (Fan & Liu, 2017).

2.2.5 Other studies on agricultural insurance performance

1) Agricultural insurance performance evaluation indicators

Using entropy weight - TOPSIS method, 12 secondary indicators affecting the performance of policy agricultural insurance were selected from 4 dimensions, namely, the level of protection, the level of government subsidy, the level of development power and the level of poverty reduction capacity, and the performance evaluation system of policy agricultural insurance was constructed. (You, Zhu & Xu,2022). In the performance evaluation of Gansu Province through the information screening part, whether suffered from agricultural risk, experience of purchasing agricultural insurance, the cognitive degree of agricultural insurance, claims service satisfaction and other aspects of customer satisfaction survey; agricultural insurance coverage level, insurance type setting, insurance depth and density, government subsidy funds for insurance companies to evaluate (Li, 2018).

From the perspective of farmers, the performance evaluation of policy agricultural insurance in Hebei Province is carried out through two aspects: the cognitive status of farmers on policy agricultural insurance and the evaluation of farmers on the current agricultural insurance subsidy policy. (Wu, 2018). Standing from the perspective of agricultural producers, agricultural insurance performance is the impact of agricultural insurance premium income and compensation expenditure on the income of agricultural producers; for the society, agricultural insurance performance is reflected in the promotion of agricultural insurance on the enhancement of the gross agricultural product. (Li, 2020). believes that the goal of agricultural insurance is to transfer the agricultural production risk of farmers, stabilize the income of farmers, and at the same time can bring certain economic and social benefits. The performance of agricultural insurance is mainly evaluated from the rationality of agricultural insurance policy, the effect of policy operation, and the social and economic benefits achieved. policy agricultural insurance involves the interests of multiple subjects, a single evaluation from a single perspective is imperfect, and may even reduce the enthusiasm of other stakeholders to participate in policy agricultural insurance because of only meeting the interests of a certain subject, thus reducing the overall performance of agricultural insurance policy. (Wang, Wang, & Li, 2017). used the DEA model to evaluate agricultural insurance performance from both macro and micro perspectives. At the micro level, the performance of agricultural insurance policy stabilizes the income of farmers, increases the consumption of farmers, promotes the sustainable development of the rural economy, and improves the agricultural insurance system. At the macro level, agricultural insurance helps increase national food supply. Empirical evidence also found that the performance level of agricultural insurance in China's provinces and cities varies significantly, and the performance of provinces with the earlier development of agricultural insurance is relatively high, and vice versa, such as Qinghai and Yunnan, the performance level of agricultural insurance is not high. (Shen, 2017). Construct Guangxi policy agricultural insurance performance evaluation indicators from four aspects: benefit indicators, financial departments, insurance companies, and farmers (Subject Group of Guangxi Department of Finance, 2023).

The performance of agricultural insurance companies is evaluated from four dimensions: financial dimension, customer dimension, internal process dimension, and learning and growth dimension. (Zhang, 2022). The gap between the actual value effect of plantation insurance and the demand value efficacy of the three participating subjects was measured using entropy weight TOPSIS method with the objectives of insurance coverage level, farmers' income loss, and insurance organization's payout for performance evaluation. The results show that, the comprehensive performance level of China's plantation insurance is low, the overall national 56%, and there are obvious provincial differences, the level of risk protection is too low, there are certain bottlenecks in the penetration of plantation insurance products, contact and service use efficiency, and the amount of compensation cannot make up for the farmers' disaster losses. (Li, 2018). Field questionnaire survey and data statistics on 542 farmers in Inner Mongolia Autonomous Region, agricultural insurance performance evaluation through five aspects of farmers' satisfaction with agricultural insurance, business link, agricultural insurance system, evaluation of premium subsidies, and claims (Zhang & Ji, 2016).

The entropy value method and grey correlation method were used to evaluate the performance of agricultural insurance in Heilongjiang Province. The business operation of agricultural insurance companies is unstable, the application of science and technology in disaster prevention and loss reduction is insufficient, and there is insufficient synergy between insurance companies for agricultural information; the government aspect has the highest level of performance, and the premium subsidy has an obvious role in the promotion of agricultural insurance, but there is a lack of coverage, a small number of insurances covered, and a low standard of subsidy. Overall, there is still a large gap between the level of agricultural insurance development and high-quality agricultural insurance. (Jiao, 2021). (Pearcy, Jason, Smith, & Vincent, 2015). established a four-dimensional agricultural insurance analysis model: the federal government, farmers, insurance agents and insurance companies consisted of, to assess the U.S. plantation insurance performance. Agricultural insurance performance generation process: demand → input → operation → result → effect,

using the talent process for evaluation. (Gu,2019). The amounts of financial subsidies for agricultural insurance in Shanxi Province and the sown area of crops were used as input indicators, and six indicators, namely, agricultural insurance premium income, agricultural insurance compensation expenditure, agricultural insurance depth, per capita disposable income of farmers, agricultural fertilizer application and agricultural insurance density, were used as output indicators. (Wang, 2023). analyzed and evaluated China's agricultural insurance from the tripartite subjects of the agricultural insurance market, which are the government, insurer, and insured (Xu, 2012). evaluated the performance of Z Insurance Company's agricultural insurance through the evaluation of project decision-making, evaluation project management, and evaluation of project performance. (Jia, 2018). used the AHP method to analyze the overall comprehensive efficiency of policy agricultural insurance in Jiangsu Province. The results show that its comprehensive efficiency score is 3.65, which is generally in the medium-high level. Further research found that insufficient risk prevention awareness at the farmers' level, insufficient risk prevention and control ability at the insurance company level, low operation and management level and low depth of agricultural insurance at the government level are the main problems it faces in the current development stage. (Zhang, 2022). Based on the research data of 598 farmers in Jiangsu Province, a comprehensive index system for evaluating the performance of high-efficiency planting agricultural insurance is determined by the hierarchical analysis method through the three dimensions of insurance service, insurance net income, and coverage, and the influence factors are analyzed by the Tobit model. (Lin &Li, 2018).

2) Other influencing factors of agricultural insurance performance

From the perspective of farmers, using the ordered Logistic model, it is concluded that farmers' insurance knowledge, farmers' education level, cultivated land scale and household annual income have an impact on the performance of policy agricultural insurance in Hebei Province. (Wu, 2018).

This paper discusses the factors influencing the performance of policy agricultural insurance in Heilongjiang Province from the perspectives of government, farmers and insurance companies, the supply capacity of insurance companies, the effective demand of farmers and the guarantee capacity of the government. The results show that farmers' education level, farmers' income, production scale, whether there are other types of insurance have an impact on it. Hou (2018). Found that agricultural insurance premium income, agricultural mechanization, fertilizer application, total agricultural water consumption, expenditure on agriculture, forestry and water affairs, and disaster-prone area (negative). will generate greater impetus for agricultural development, and agricultural insurance performance will increase with the level of scale. (Li, 2020).

The scale and efficiency of the use of premium subsidy funds, the basic characteristics of farmers, and the specificity of plantation risks, especially the spatial correlation, are the key factors affecting the level of plantation insurance performance. (Li, 2018).

It is found that the factors affecting the performance of agricultural insurance are as follows: the amount of agricultural fertilizer construction, the density of agricultural insurance, the per capita disposable income of farmers, the sown area of crops, and the depth of agricultural insurance coverage. (Wang, 2023).

Using the ACSI model for the performance evaluation of vegetable insurance implementation, it is found that the weight of the degree of protection is very high, so in order to further improve the implementation performance of vegetable insurance, attention should be paid to improving the degree of protection of farmers by taking effective measures. (Gu, 2022).

The intention of farmers to participate in insurance was analyzed through a questionnaire survey, and then the Logistic model was used for regression analysis of the questionnaire data. Combined with Smith theory, it was concluded that the factors

affecting the intention of farmers to participate in insurance were education level, the proportion of agricultural income in the total family income, and the effect on the stability of family income. (Sun, 2023).

Field research data on the weather index of grassland meat goats of more than 500 herding households in Inner Mongolia concluded that the age of herding households, the area of pasture, the degree of insurance awareness, publicity, whether they hold public office, whether their neighbors purchase and the evaluation of the degree of disaster risk have a significant impact on the aspect of the herding households' purchasing tendency. (Bow, 2021).

Empirical research for agricultural insurance in Hunan Province found that rural per capita disposable income, agricultural income to per capita disposable income ratio has a significant effect on agricultural insurance demand. (Qian & Wang, 2022).

Based on the two perspectives of planting and farming, the empirical study using time series Tobit model found that the urbanization rate had a significant positive impact on the level of agricultural insurance coverage. Agricultural population and the degree of disaster have significant negative effects on the level of agricultural insurance. (Wang, 2022).

Through one-on-one interviews with 121 litchi farmers in Hainan Province and Guangdong Province, the study found that: 58.68% of litchi farmers indicated that they needed policy agricultural insurance, and the age of the farmers was negatively correlated with their insurance needs. The age of the farmers was negatively correlated with their demand for insurance, and the number of family members involved in production management and the total income of litchi were positively correlated with their demand for insurance. (Song, Qi, Li, & Yan, 2019).

Taking 363 family farms in Xinjiang as the survey objects, binary Logistic model was used to analyze that age, education background, years of operation, and participation in agricultural insurance-related lectures were significant factors affecting the satisfaction of agricultural insurance in Xinjiang family farms. (Zhao & Cheng, 2023).

From the perspective of the government, it is found that the government needs the economic efficiency of agricultural insurance, the efficiency of the use of funds and the safety of funds, the ability of agricultural insurance to create profits is the fundamental interest of insurance companies, and the interest of farmers is that when an insurance accident occurs, the insurance payout is close to the "farmer's own premiums + costs and income losses caused by the disaster. (He, 2022).

Based on the research data of 598 farmers in Jiangsu Province, it was found that: The identity of farmers, the degree of dependence on agricultural production and location conditions are the most important factors affecting the evaluation of the performance of agricultural insurance for efficient cultivation. (Lin & Li, 2018).

Management (age, training), production (Utilized Agricultural Area (UAA), production concentration), financial status (debt ratio, return on equity (ROE).), and last year's insurance decision, all have an impact on agricultural insurance performance (Zubor-Nemes Fogarasi, Molnár, & Kemény, 2018).

The results of the model show that the level of premium subsidy has a large impact on the incentives of agricultural producers to introduce insurance. For every 100 units of additional subsidy, the insurance motivation of agricultural producers increases by 0.43 percentage points. Agricultural income has a significant impact on increasing agricultural producers' motivation to invest in insurance. For every increase in farm income, the insurance motivation of agricultural producers increases by 0.002. The level of education has a large impact on increasing agricultural producers' motivation to invest in insurance. As the level of education increases, the insurance positivity of

agricultural producers increases by 0.226 percentage points. (Tian, Li, & Jia, 2022).

Following tendency and imitation tendency become new influencing factors affecting farmers' purchase of policy planting agricultural insurance. The larger the land size and the more educated the farmers are, the more they are affected by the peer effect. The results of mechanism analysis showed that the influence of peer effect was weakened through the mediating variables of social network and trust. (Bao,Zhang,Guo,Deng,Song,& Xu, 2022).

Objective and subjective beliefs may play a role in crop insurance purchase decisions in China, objective (historical). risk or subjective (future). risk. Insurance companies should consider farmers' "feelings" about insurance. While farmers may consider future risks when making decisions, the actuarial structure of insurance will be based primarily on past risks. If subjective beliefs differ significantly from these objective actuarial indicators, there may be resistance to purchasing insurance. (Fu et al., 2022).

Evidence of a U-shaped relationship between cultivated area and farmers' willingness to pay for crop insurance policies. Farmers are generally willing to pay higher subsidized premiums than they currently pay under PMFBY. There is an inelastic response to changes in premium rates paid by producers at both the crude and intensive margins, while the response to premium rates becomes increasingly elastic as subsidies increase. Capacity factors are important determinants behind the decision to adopt crop insurance. Incentives play a greater role in determining the extent of insurance adoption. (Ghosh et al., 2021).

In a study of India, it was found that the dissemination of information about the benefits of hedging insurance losses had a positive impact on farmers' adoption of crop insurance. Increasing trust in institutional insurance mechanisms is also critical considering insurance adoption. (Rajeev & Nagendran, 2023).

Demand for insurance was significantly and positively associated with farmers' concerns about the adverse impacts of climate change on their livelihoods. Farmers who exhibit a fatalistic view of the consequences of climate change are much less likely to choose any kind of insurance. Farmers' prospects for investing in insurance also depend on their understanding of climate change risks and the utility of adaptation. (Akter, Krupnik & Khanam, 2017).

Age, marital status, and education significantly and positively affect cocoa farmers' willingness to insure their farms, while household size and acreage negatively affect farmers' willingness to insure their farms. Similarly, age, household size and acreage had a significant and positive effect on farmers' willingness to pay for quality cocoa powder while marital status and cocoa income had a negative effect on farmers' willingness to pay for quality cocoa powder. (Okoffo, Denkyirah, Adu, & Fosu-Mensah, 2016).

Informal interest rates are significantly and positively associated with the probability of enrolling in crop insurance and there are differences in crop insurance enrollment across economic and social classes. Ability factor is an important determinant behind the decision to adopt crop insurance. (Rajeev, & Nagendran, 2023).

Age, farming experience, education level, land ownership status, land size, access to credit associated with farmers' decision to purchase crop insurance. (Fahad et al., 2018).

Educational attainment, land tenure, farm size, group membership and insurance awareness positively influence maize farmers' decision to adopt crop insurance. Household size negatively affects the crop insurance premium that farmers are willing to pay. (Jules, Fabrice, & Joseph, 2022).

Access and acceptance of smallholder farmers to agricultural insurance is low and scarce, but lack of understanding of agricultural insurance products, poor sensitization, sense of security, gender, education, and low level of knowledge affects farmers' acceptance and access to agricultural insurance. (Ankrah,Kwapong,Eghan, Adarkwah,& Boateng-Gyambiby, 2021).

Lack of international experience, limited products, lack of data experience, financial management, and high administrative costs are the main issues affecting insurance performance in agricultural insurance. (Alam,Begum,Masud,, Al-Amin, & Leal Filho, 2020).

Findings show that crop insurance demand in the study area varies according to access to credit and extension services, exposure to past severe weather events, irrigation availability, source of income, land ownership, household size, education level, and age of the respondents. (Fahad & Jing, 2018).

3) Summary of influencing factors of policy agricultural insurance performance

According to the research results of many scholars, there are many factors affecting the performance of agricultural insurance, which are summarized in the following table:

Table 2.1 Literature Form on Factors Affecting Agricultural Insurance Performance
(Cont.)

Author(s)	Factors affecting agricultural insurance performance													
	Farmers (age, education)	The income of farmers (per capita disposable income of farmers)	The knowledge of farmers about insurance	The size of arable land	The extent of losses caused by natural disasters/whether they have suffered from losses in the past	The awareness of farmers about risks	The amount of agricultural insurance claims/the level of payment of claims	The income of premiums from agricultural	The speed of payment of claims	The diversification of products	The propaganda of agricultural insurance	The amount of subsidies for premiums for agricultural insurance	The density of insurance in agriculture	The depth of insurance in agriculture
Xu (2012)			✓											
Sun (2023)	✓	✓	✓				✓		✓					
Sun, Luo, & San (2020)			✓								✓	✓		
Zhang, Zhan & Chen (2017)	✓		✓			✓								
Li (2022)	✓	✓		✓			✓					✓		

Table 2.1 Literature Form on Factors Affecting Agricultural Insurance Performance
(Cont.)

[illegible]

Table 2.1 Literature Form on Factors Affecting Agricultural Insurance Performance
(Cont.)

Author(s)	Factors affecting agricultural insurance performance												
	Farmers (age, education)	The income of farmers (per capita disposable income of farmers)	The knowledge of farmers about insurance	The size of arable land	The extent of losses caused by natural disasters/whether they have suffered from losses in the past	The awareness of farmers about risks	The amount of agricultural insurance claims/the level of payment of claims	The income of premiums from agricultural	The speed of payment of claims	The diversification of products	The propaganda of agricultural insurance	The amount of subsidies for premiums for agricultural insurance	The density of insurance in agriculture
Song, Qi & Yan (2019)	✓	✓											
Hui (2016)	✓	✓	✓								✓		
Chu & Cui (2017)	✓	✓	✓		✓								
Nie & Shen, (2017)	✓		✓										
Wang (2022)					✓		✓					✓	

Table 2.1 Literature Form on Factors Affecting Agricultural Insurance Performance
(Cont.)

Author(s)	Factors affecting agricultural insurance performance													
	Farmers (age, education)	The income of farmers (per capita disposable income of farmers)	The knowledge of farmers about insurance	The size of arable land	The extent of losses caused by natural disasters/whether they have suffered from losses in the past	The awareness of farmers about risks	The amount of agricultural insurance claims/the level of payment of claims	The income of premiums from agricultural	The speed of payment of claims	The diversification of products	The propaganda of agricultural insurance	The amount of subsidies for premiums for agricultural insurance	The density of insurance in agriculture	The depth of insurance in agriculture
Tian, Li & Jia, (2022)	✓	✓										✓		
Bao, Zhang, Guo, Deng, Song, & Xu (2022)	✓			✓										
Fahad & Jing (2018)	✓	✓			✓						✓			

Table 2.1 Literature Form on Factors Affecting Agricultural Insurance Performance
(Cont.)

Author(s)	Factors affecting agricultural insurance performance													
	Farmers (age, education)	The income of farmers (per capita disposable income of farmers)	The knowledge of farmers about insurance	The size of arable land	The extent of losses caused by natural disasters/whether they have suffered from losses in the past	The awareness of farmers about risks	The amount of agricultural insurance claims/the level of payment of claims	The income of premiums from agricultural	The speed of payment of claims	The diversification of products	The propaganda of agricultural insurance	The amount of subsidies for premiums for agricultural insurance	The density of insurance in agriculture	The depth of insurance in agriculture
Fahad, Wang, Hu, Wang, Yang, Shah, Huong & Bilal, (2018)	✓			✓		✓					✓			
Ankra-h, Kw- apong, Eghan, Adark wah,	✓		✓	✓							✓			

Table 2.1 Literature Form on Factors Affecting Agricultural Insurance Performance
(Cont.)

Author(s)	Factors affecting agricultural insurance performance												
	Farmers (age, education)	The income of farmers (per capita disposable income of farmers)	The knowledge of farmers about insurance	The size of arable land	The extent of losses caused by natural disasters/whether they have suffered from losses in the past	The awareness of farmers about risks	The amount of agricultural insurance claims/the level of payment of claims	The income of premiums from agricultural	The speed of payment of claims	The diversification of products	The propaganda of agricultural insurance	The amount of subsidies for premiums for agricultural insurance	The density of insurance in agriculture
Gómez-Limón & Granda-Díaz, (2023)							✓						
Alam, Begum, Masud, Al-Amin, & Leal Filho (2020)										✓			

Author(s)		Factors affecting agricultural insurance performance	
Tsiboe & Turner (2023)	✓	Farmers (age, education)	
		The income of farmers (per capita disposable income of farmers)	
		The knowledge of farmers about insurance	
		The size of arable land	
		The extent of losses caused by natural disasters/whether they have suffered from losses in the past	
		The awareness of farmers about risks	
		The amount of agricultural insurance claims/the level of payment of claims	
		The income of premiums from agricultural	
		The speed of payment of claims	
		The diversification of products	
		The propaganda of agricultural insurance	
		The amount of subsidies for premiums for agricultural insurance	✓
Gómez-Limón & Granda-Díaz (2023)		The density of insurance in agriculture	
		The depth of insurance in agriculture	

2.3 Hypothesis

H1: Government Policy Support has an impact on Agricultural Insurance Performance in Guangdong Province.

H2: Government Policy Support has an impact on Insurance Supply Capacity in Guangdong Province.

H3: Government Policy Support has an impact on Effective Demand of Farmers in Guangdong Province.

H4: Insurance Supply Capacity has an impact on Effective Demand of Farmers in Guangdong Province.

H5: Insurance Supply Capacity has an impact on Agricultural Insurance Performance in Guangdong Province.

H6: Effective Demand of Farmers has an impact on Agricultural Insurance Performance in Guangdong Province.

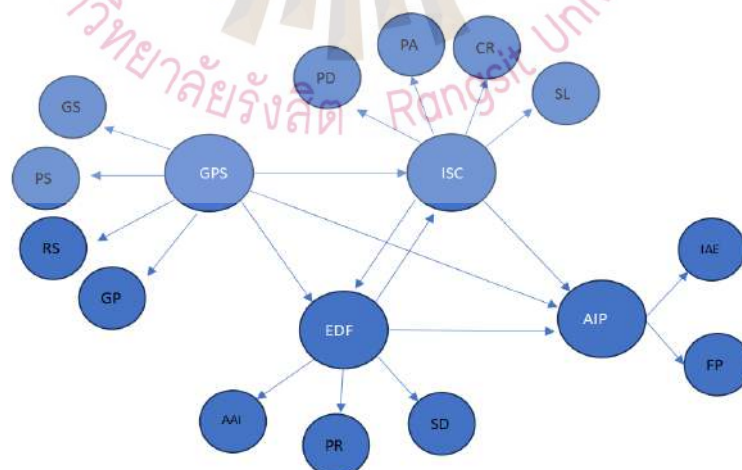


Figure 2.11 The hypothetical model

Source: Researcher

Note*:

1) GPS=Government Policy Support

1.1) GS=Government subsidies

1.2) RS=Regulatory support

1.3) PS=Policy stability

1.4) GP=Government Propaganda

2) ISC=Insurance Supply Capacity

2.1) PD=Product Design

2.2) PA=Premium affordability

2.3) CR=Claim Reasonability

2.4) SL=Service level

3) EDF:Effective Demand of Farmers

3.1) AAI=Awareness of Agricultural Insurance

3.2) PR=Perception of Risk

3.3) SD=Satisfaction Degree

4) AIP: Agricultural Insurance Performance

4.1) IAE= Impact on Agricultural Economic

4.2) FP=Financial protection provided

2.4 Guangdong policy agricultural insurance overview

2.4.1 Policy Agricultural Insurance Operators in Guangdong Province

As of 2021, there are 13 major insurance companies underwriting policy agricultural insurance in Guangdong Province, including People's Republic of China Property Insurance Company, China Pacific Insurance Company, Ping An Insurance Company of China, China Taiping Insurance Company, Yongan Property Insurance Company, China United Insurance Company, Dadi Property Insurance Company, Everybody's Property Insurance Company, Sunshine Property Insurance Company, China Life Property Insurance Company, Sunshine Agricultural Mutual Insurance Company, Zijin Property Insurance Company, Huanong Property Insurance Company. Because, Sunshine property insurance, Yongan Property Insurance, General property insurance, Zijin Property Insurance and Huanong property Insurance are the five insurance companies, the share of insurance is very low and does not exceed 1 percent. insurance shares are extremely low, not exceeding 1%, they are not included in the comparison.

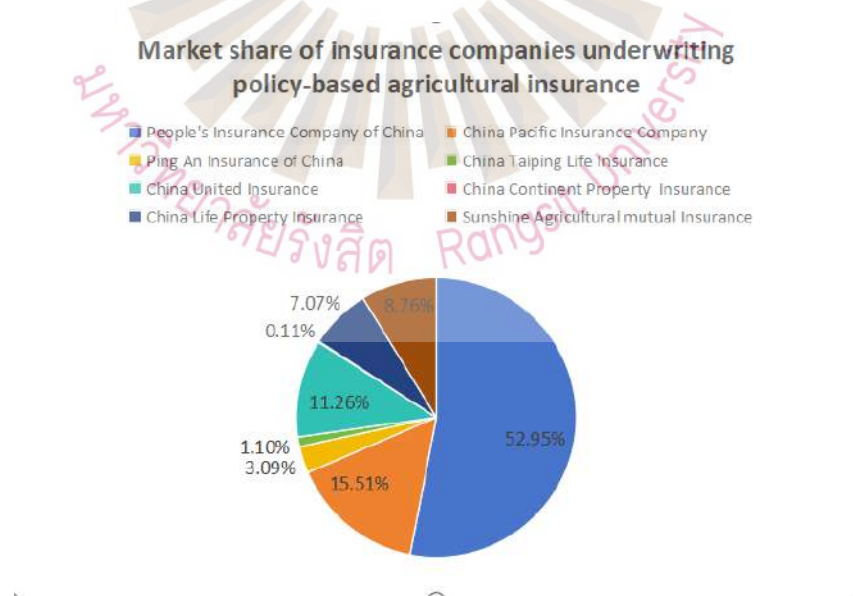


Figure 2.12 Market share of insurance companies underwriting policy agricultural insurance

Source: China Insurance Yearbook (2014-2024), 2024

From Figure 2.4., it can be seen that Guangdong Province policy agricultural insurance operation is more concentrated, the main share is concentrated in the People's Property Insurance Company of China, China Pacific Insurance Company, China United Insurance Company, the share of nearly 80%.

2.4.2 Guangdong Province Policy Agricultural Insurance Premium Income and Payout

By 2023, Guangdong's policy agricultural insurance premium income reached 10,131 million yuan, with premium income growing steadily from 2014 to 2023. 10,131 million yuan in 2023, a year-on-year increase of 23.88%.

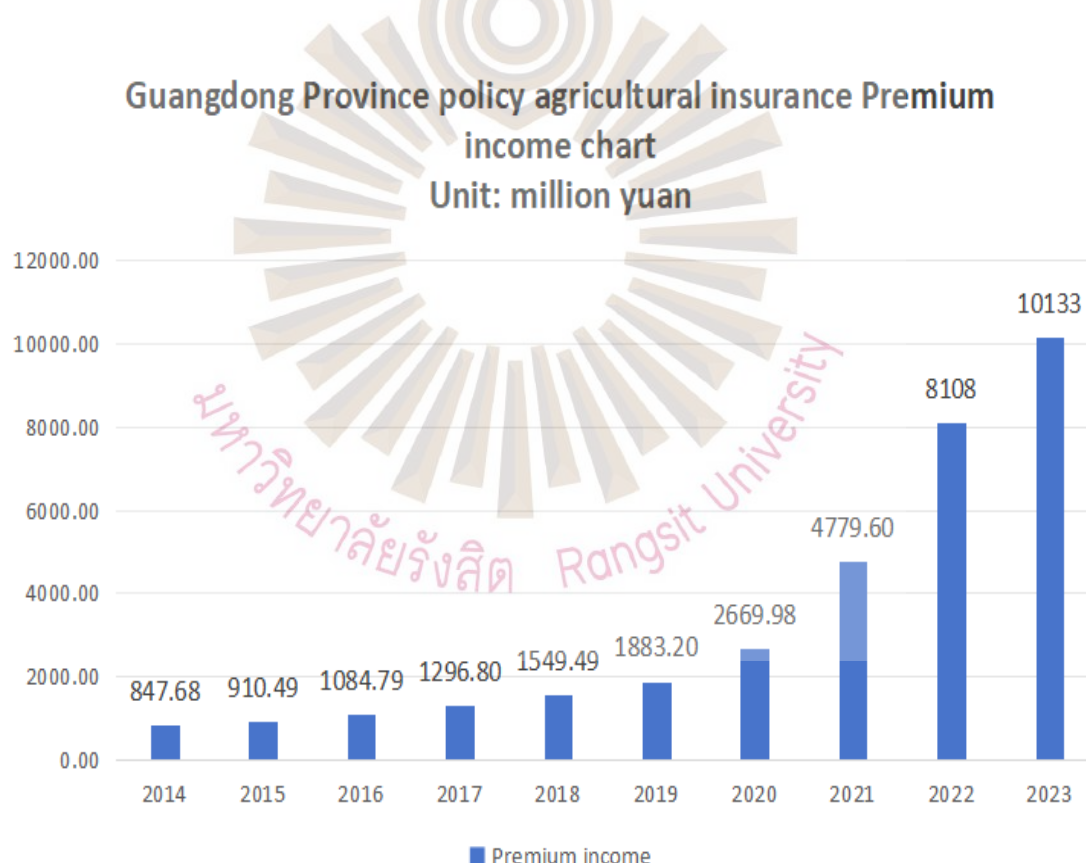


Figure 2.13 Guangdong Policy Agricultural insurance Premium Income Chart

Source: China Insurance Yearbook (2014-2024), 2024

**Guangdong Province policy agricultural insurance indemnity
expenditure chart**
Unit: million yuan

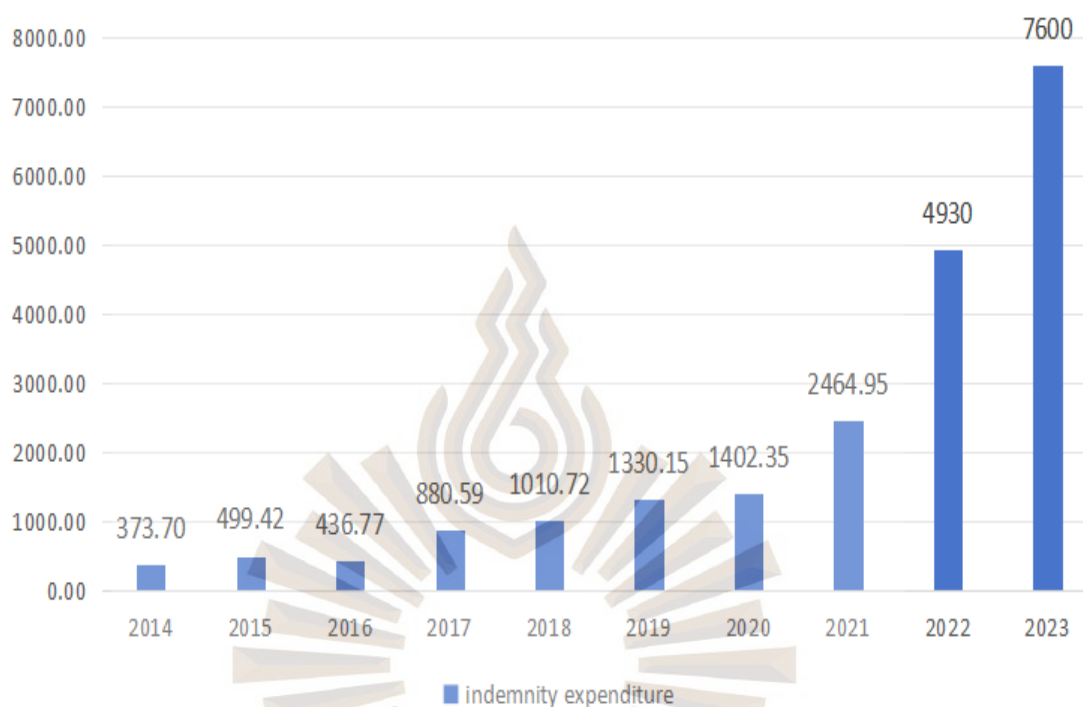


Figure 2.14 Guangdong Policy Agricultural insurance indemnity
expenditure Chart

Source: China Insurance Yearbook (2014-2024), 2024

As of 2023, policy agricultural insurance payouts in Guangdong Province reached 7,600 million yuan. From 2014 to 2023, premium income insurance payouts grew steadily, and the ability to protect against risks was gradually enhanced. 2023 saw a 54.16% year-on-year increase compared to 2022.

Guangdong Province policy agricultural insurance payout rate chart

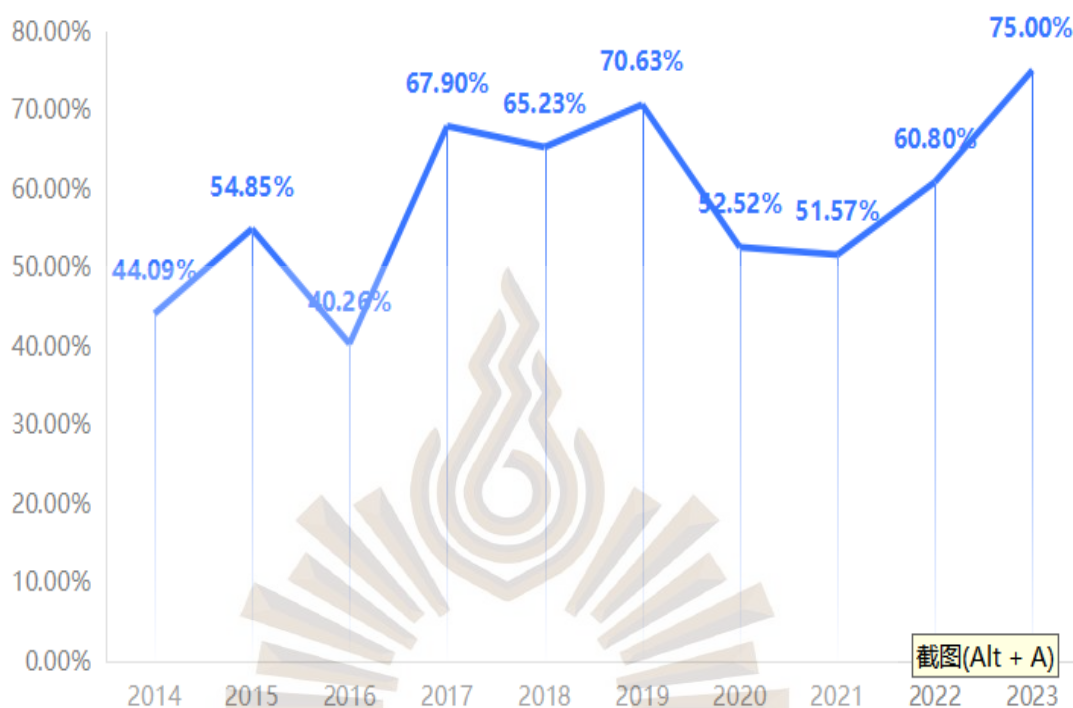


Figure 2.15 Guangdong Province policy agricultural insurance payout rate chart

Source: China Insurance Yearbook (2014-2024), 2024

As of 2023, the payout rate has stabilized at around 50%, with the highest reaching 75%, it's the highest in a decade, the lowest 40.26% in 2016. 2023 saw an increase in the overall payout rate compared to 2021 and 2022, it provided 303.677 billion yuan of risk protection for about 8 million sub-farmers in the province, and the risk protection capacity has been gradually strengthened.

2.4.3 Types of policy agricultural insurance and government subsidies in Guangdong Province

Table 2.2 Table on the types of policy agricultural insurance and government subsidies in Guangdong Province

Type of insurance	Type of planting	Types of insurance	Insurance coverage	Insurance premium	Central financial subsidy	Provincial financial subsidies		Municipal and county financial burden		Farmers pay out-of-pocket
			(Yuan/Acre, Head, Feather).	Per manufacture/Year/Lot		Area 1	Area 2	Area 1	Area 2	
Centrally subsidized types of insurance	Crop insurance	Rice	1000	3.5%	35%	0	30%	45%	15%	20%
		Rice (including full cost of rice).	1250	3.2%	35%	0	30%	45%	15%	20%
		Rice seed production	2000	15%	35%	0	30%	45%	15%	20%
		Potatoes	1800	8%	35%	0	30%	45%	15%	20%
		Corn	600/1000	4%	35%	0	30%	45%	15%	20%
		Peanuts	1000	2%	35%	0	30%	45%	15%	20%
		Sugar cane	1500	4.5%	35%	0	30%	45%	15%	20%
	Farming insurance	Pigs	2500/500/1500	7%/5.6%/3.8%	40%	0	25%	35%	10%	25%
		Milk cow	20000/15000/10000	6%	40%	0	25%	35%	10%	25%
	Forest insurance	Public welfare forest	1200	4‰, 1.5‰	50%	0	30%	50%	20%	0%
		Commercial forest	1200	8‰, 4‰	30%	0	30%	40%	10%	30%

Table 2.2 Table on the types of policy agricultural insurance and government subsidies in Guangdong Province (Cont.)

Type of insurance	Type of planting	Types of insurance	Insurance coverage	Insurance premium	Central financial subsidy	Provincial financial subsidies		Municipal and county financial burden		Farmers pay out-of-pocket
			(Yuan/Acre, Head, Feather).	Per manufacture/Year/Lot		Area 1	Area 2	Area 1	Area 2	
Provincial subsidized insurance	Crop insurance	Lingnan fruits (including all fruits grown in Guangdong)	3000	12%/8%	0	5%	40%	55%	20%	40%
		Teas	5000	3%	0	5%	40%	55%	20%	40%
		Open-land vegetable	900/1500/2000	12%/8%	0	5%	40%	55%	20%	40%
		Greenhouse vegetable	900/1500/2000	8%/4.8%	0	5%	40%	55%	20%	40%
		Open-land flowering seedlings	3000/5000	10%/7%	0	5%	40%	55%	20%	40%
		Greenhouse flowers and seedlings	3000/5000	7%/4%	0	5%	40%	55%	20%	40%
		Planting greenhouse	4000	7.5%/4.5%	0	5%	40%	55%	20%	40%
		Steel structure greenhouse	15000	6%/3%	0	5%	40%	55%	20%	40%
	Farming insurance	Chicken	30	1.8%	0	5%	40%	55%	20%	40%
		Duck	30	1.5%	0	5%	40%	55%	20%	40%
		Egg-laying chicken	40	3%	0	5%	40%	55%	20%	40%

Table 2.2 Table on the types of policy agricultural insurance and government subsidies in Guangdong Province (Cont.)

Type of insurance	Type of planting	Types of insurance	Insurance coverage	Insurance premium	Central financial subsidy	Provincial financial subsidies		Municipal and county financial burden		Farmers pay out-of-pocket
			(Yuan/Acre, Head, Feather).	Per manufacture/Year/Lot		Area 1	Area 2	Area 1	Area 2	
Provincial subsidized insurance	Farming insurance	Aquaculture (including freshwater, brackish and freshwater aquaculture).	5000-9000	6%	0	5%	40%	45%	10%	50%
		Modernized sea ranch farming (including sea ranch, seawater net-pen farming).	Decide for oneself	10%	0	5%	45%	55%	15%	40%
	Crop insurance	Trees:	1500	0.4%	0	5%	40%	55%	20%	40%
		Oil tea fresh fruit:	600-3600	5%	0	5%	40%	55%	20%	40%
Local specialty insurance						≤10%	≤35%	decide for oneself	decide for oneself	

Source: Department of finance of Guangdong province, 2023

Policy agricultural insurance in Guangdong Province covers three major categories: planting, breeding and deep forest. Central financial subsidy: rice, potatoes, corn, peanuts, sugar cane, hogs, cows, public welfare forests, commercial forests, 9 types of insurance; provincial financial subsidies: Lingnan fruit, tea, vegetables,

flowers and seedlings, greenhouses, broilers, broiler ducks, egg-laying hens, aquaculture, modern sea ranch farming, oil tea 11 types of insurance. From the farmers' point of view, the central financial subsidies for insurance premium subsidies are the highest, the highest is the public forest to reach 100% premium subsidies; planting insurance financial premium subsidies in the second, up to 80%, farmers pay 20% of the premium. Provincial financial subsidy type insurance, the overall premium subsidy for 40% to 50%, farmers pay about 50%.



Chapter 3

Research Methodology

This chapter clarifies and expounds the research methods of influencing factors of Guangdong policy agricultural insurance performance, and the relationship between influencing factors and Guangdong policy agricultural insurance performance. This study adopts the mixed research method of quantitative analysis and qualitative analysis. This part includes data collection, data analysis, research methods and statistical tools.

3.1 Qualitative method

This study will use expert interviews to conduct in-depth interviews with five experts with senior experience in agricultural insurance in order to understand their views and feelings about the factors influencing the performance of policy agricultural insurance. The interview outline and questions were formulated according to the results of relevant literature review. The interviews will be conducted face-to-face and audio-recorded, transcribed and coded, and thematically analyzed to extract the experts' strengths and weaknesses, as well as their suggestions for improving agricultural insurance performance.

This interview will be conducted before distributing and collecting questionnaires. The interviews will be conducted with five experts with senior experience in agricultural insurance. These five experts will be interviewed individually face-to-face in a semi-structured manner in order to find out their views and feelings about their perception of the factors influencing the performance of policy agricultural insurance.

In order to ensure the privacy of the individuals being interviewed, their consent prior to conducting the interviews will be obtained. The interviews will take place in a safe secluded environment, where the perspectives of the interviewees will be maintained with confidentiality. This approach will allow to gather diverse perspectives from informants with different characteristics, ensuring that the resulting viewpoints are more representative and enhancing the credibility of our study.

The questions of the interview will focus on the factors affecting the performance of policy agricultural insurance in Guangdong Province.

- 1) Personal information: including basic information of the interviewee;
- 2) Development background of policy agricultural insurance in Guangdong Province;
- 3) The willingness and attitude to study the factors affecting the performance of policy agricultural insurance in Guangdong Province;
- 4) Influencing factors and experience of policy agricultural insurance performance: In the current research, the influencing factors of policy agricultural insurance performance were discussed;
- 5) Guidance and support: whether these factors can provide certain guidance and suggestions for the development of policy agricultural insurance in Guangdong Province;

Thematic Content Analysis. After obtaining the interviewer's permission, transcripts and recordings of the interviews will be made in order to organize and analyze the content of the interviews. These interviews will then be transcribed, coded and analyzed to identify important information and ideas. The codes will be categorized into themes and the logical relationships between these themes will be examined. Constructing a theoretical model of the factors influencing the performance of policy agricultural insurance is key to exploring the factors influencing the performance of policy agricultural insurance. This will be of great help to the later empirical evidence and the formulation of recommendations for the development of policy agricultural insurance in Guangdong Province.

3.2 Quantitative method

3.2.1 Population and samples

The study population of this dissertation is farmers who have purchased agricultural insurance in Guangdong Province. However, in order to ensure the availability of data, this study adopts the method of regional stratified sampling to conduct a questionnaire survey, and conducts sampling research in three regions of eastern Guangdong, central Guangdong and western Guangdong. In the east of Guangdong, Puning is a country-level city of Jieyang City is selected, Yingde is a country-level city of Qingyuan City is selected in the middle of Guangdong Province, and Xuwen is a country-level city of Zhanjiang City is selected in the west of Guangdong Province.

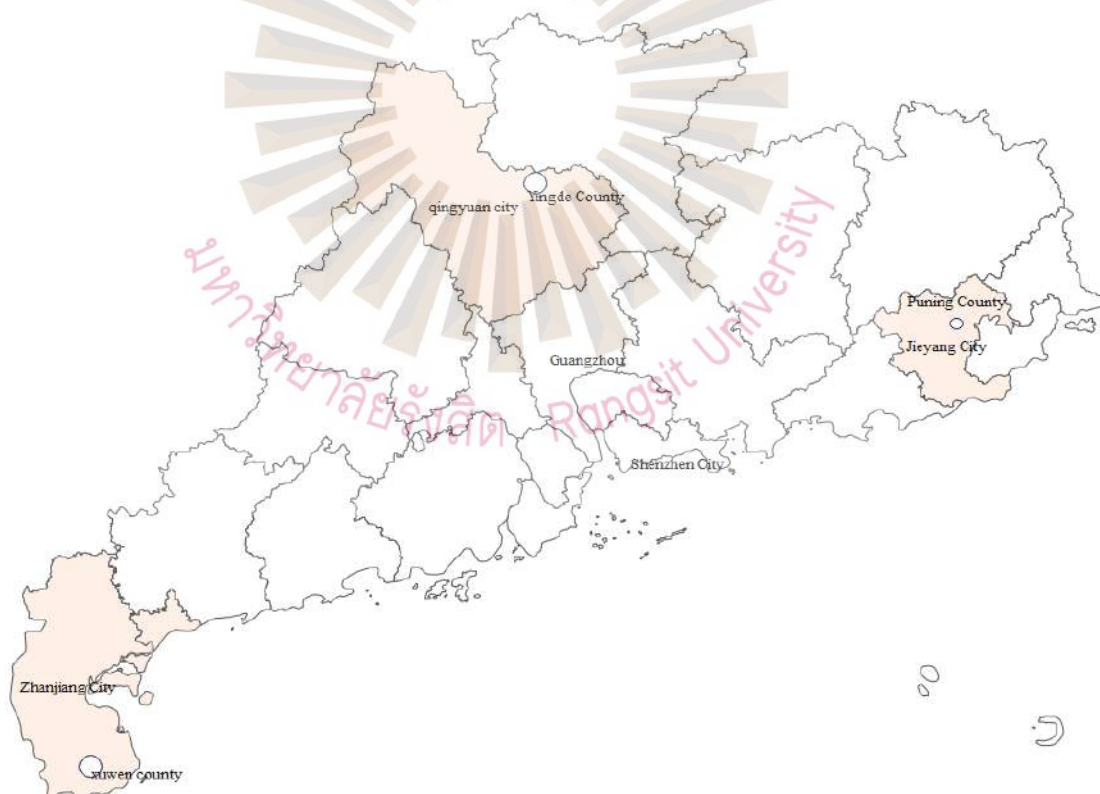


Figure 3.1 Research area

Source: Standard Map Service, 2024

According to the statistics of the People's Government of Guangdong Province, 8 million rural households in Guangdong Province will purchase agricultural insurance in 2023. According to Cochran (1953) the simple random sampling sample size formula, the sample size is calculated as:

$$n = \frac{Z^2 P(1 - P)}{E^2} \quad (3-1)$$

When

n: Minimum size of sample group

Z: The confidence interval (Usually 95% corresponds to a Z value of 1.96).

P: Represents the degree of dispersion of the sample (usually 0.5 for maximum sample size)

E: Represents the margin of sampling error (5%)

$$n = \frac{1.96 \times 1.96 \times 0.5 \times 0.5}{0.05 \times 0.05} \quad (3-2)$$

$$n_{\text{Min}} = 384.16$$

For the scientific nature of the questionnaire, integers are selected upward, and the sample size is 400. Thus, the 400 questionnaires will be distributed in Puning, Yingde and Xuwen counties according to the proportion of people who buy agricultural insurance in each county. Specific distribution is shown in the table below.

Table 3.1 Questionnaire distribution

Area	population	Quota	n
Puning	223,570	50%	200
Yingde	130,820	30%	120

Table 3.1 Questionnaire distribution (Cont.)

Area	population	Quota	n
Xuwen	90,400	20%	80
Total	<u>444,790</u>	<u>100%</u>	<u>400</u>

3.2.2 Research Instrument

The questionnaire survey data will come from the field research from April 2024 to June 2024 in Guangdong Province. The questionnaire survey methodology will be applied to the two sections of the thesis, which are the evaluation of the performance of policy agricultural insurance in Guangdong Province and the analysis of influencing factors.

The body of the questionnaire consists of five sections, namely: demographic, Level of opinion about Government Policy Support, Level of opinion about Insurance Supply Capacity, Level of opinion about Effective Demand of Farmers, Level of opinion about Agricultural Insurance Performance. Most of the questions in the survey questionnaire come from mature questionnaires and have been added or subtracted accordingly to the research content of this paper, and the question forms include multiple choice questions.

3.2.3 Instrument testing

After the research topic has been approved from the committee members of the oral defense, questionnaire will be developed and presented to the advisor for verifying content validity in order to amend and develop the list more effectively.

Submitted the questionnaire to verify the accuracy and appropriation of the questionnaire by Index of item objective congruence: IOC to 5 experts of academics and professionals in the field of agricultural economics to verify its validity:

Scoring +1 = Certain that the test is congruent with the objectives or content.

Scoring 0 = Uncertain that the test is congruent with the objectives or content.

Scoring -1 = Certain that the test is NOT congruent with the objectives or content;

After adjusting and formulating the questionnaire items according to the expert opinions, sampling inspection was carried out. According to Cochran (1953) the simple random sampling sample size formula, the sample size is calculated as:

$$n = \frac{Z^2 P(1 - P)}{E^2} \quad (3-3)$$

When

n: Minimum size of sample group

Z: The confidence interval (Usually 95% corresponds to a Z value of 1.96).

P: Represents the degree of dispersion of the sample (usually 0.5 for maximum sample size)

E: Represents the margin of sampling error (20%)

$$n = \frac{1.96 \times 1.96 \times 0.5 \times 0.5}{0.2 \times 0.2} \quad (3-4)$$

$$n_{\text{Min}} = 24.01$$

To reduce error, the questionnaire will be pretested with 30 of the non-sample farmers with the reliability of the questionnaire will have been tested using Cronbach's alpha coefficient (1990). Cronbach's Alpha is a commonly used reliability detection method in current academic research. Cronbach's alpha is generally between 0 and 1. If the reliability coefficient of the scale is above 0.8, the reliability of the scale is good. If

the reliability coefficient of the scale is between 0.7-0.8, it means that the reliability of the scale is good. If the reliability coefficient of the scale is between 0.65 and 0.7, the reliability of the scale is acceptable. If the reliability coefficient of the scale is below 0.65, it means that the scale design is poor and the items need to be redesigned. (Liu, 2008).

For the online questionnaire, the "Questionnaire Star" platform was chosen. This platform is a comprehensive tool for data collection, analysis, and management. It offers various features such as online questionnaires, exams, 360-degree evaluations, forms, assessments, and polls. It allows for the distribution of questionnaires through WeChat applet, real-time observation of questionnaire responses, and direct export of recovered questionnaire information. Overall, the platform is stable, convenient, and fast.

Requested for the letters of permission from college for a request of questionnaires to be distributed to Farmers in Guangdong province in order to collect the data; collated questionnaires must be at 80 percents back with the complete answers received from the respondents and will be further analyzed for the results.

3.2.4 Data collection

data collection includes:

- 1) Government subsidies of policy agricultural insurance in Guangdong Province.
- 2) Policy agricultural insurance Regulatory Support in Guangdong Province.
- 3) Policy agricultural insurance Policy Stability in Guangdong Province.
- 4) Policy agricultural insurance Government Propaganda in Guangdong Province.
- 5) Product Design of policy agricultural insurance in Guangdong Province.

- 6) Policy agricultural insurance Premium Affordability in Guangdong Province.
- 7) Policy agricultural insurance Claim Reasonability in Guangdong Province.
- 8) Policy agricultural insurance Service level in Guangdong Province.
- 9) Farmers' Awareness of Agricultural Insurance.
- 10) Farmers' Perception of Risk of Agricultural Insurance.
- 11) Farmers Satisfaction Degree of Guangdong policy agricultural insurance.

The main point of view of this paper is to collect the factors affecting the performance of policy agricultural insurance in Guangdong Province from the perspectives of government, insurance companies and farmers.

3.2.5 Data analysis

The collected questionnaires will be analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to test and validate the conceptual model.

To investigate the evaluation of the performance of policy agricultural insurance in Guangdong province and the factors affecting the effective demand of policy agricultural insurance. Statistics are described as mean, standard deviation, percentage, frequency, and consistent levels.

3.2.6 Statistical tools

Structural equation models (SEM) were developed by Swedish statisticians. It was proposed by Karl G. Joreskog in the 1970s. Two kinds of structural equation models are based on CB-SEM and PLS-SEM. The above two models are derived from structural equation model, although there are differences in algorithms, but each has its own advantages. Selected use in this article PLS-SEM was used to analyze the

influencing factors of policy agricultural insurance in Guangdong Province.

1) Reliability Test

Reliability test, also known as Reliability Analysis, refers to the reliability of the questionnaire, including internal reliability and external reliability. A well-designed questionnaire should be reliable and stable. In general, if no scale development research is carried out, it is only necessary to test the intrinsic reliability. Cronbach's Alpha is a commonly used reliability detection method in current academic research. Cronbach's alpha is generally between 0 and 1. If the reliability coefficient of the scale is above 0.8, the reliability of the scale is good. If the reliability coefficient of the scale is between 0.7-0.8, it means that the reliability of the scale is good. If the reliability coefficient of the scale is between 0.65 and 0.7, the reliability of the scale is acceptable. If the reliability coefficient of the scale is below 0.65, it means that the scale design is poor and the items need to be redesigned. (Liu,2008).

2) Validity Test

Validity refers to the degree to which the measurement work or means can accurately measure what is being measured. There are three types of validity: content validity (logical validity), criterion validity (predictive validity), and structural validity (exploratory factor Analysis EFA and confirmatory factor score CFA). Researchers usually use the KMO value and Bartlett value to determine whether it is suitable for factor analysis. In general, if the KMO value is greater than 0.6 and the Bartlett sphericity test is less than 0.05, it is suitable for factor analysis. (Cai,2010).

3) Descriptive analysis

Descriptive statistics involves summarizing and organizing the data for further the analysis that can be easily understood. In this study, the preliminary data

analysis using the univariate analysis method was employed to describe the key characteristics of the observations. Through statistical analysis of distribution, central tendency and dispersion, including frequency, percentage, mean and standard deviation, the demographic information of participating farmers was described, such as gender, age, education level, family size, cultivation area, planting type and planting experience. The mean and standard deviation are also used to describe the structure of this study, that is, the interval scale; Government support, effective demand of farmers, supply capacity of insurance companies, performance level. The interpretation of the average interval and its corresponding is that when the average is between 4.00 and 5.00, it is considered that we agree very much; When the average value is between 3.00 and 4.00, it is considered to be agreed; When the average is between 2.00 and 3.00, it is considered to be a general agreement; When the average value is between 1.00 and 2.00, it is considered to be a disagreement. When the average is between 0.00 and 1.00, it is considered to be a strong disagreement.

4) Analysis of variance

Conduct an independent sample T test if each variable method equation is significant by the Levene test Sig. If the probability is greater than 0.05, it indicates that the factors have homogeneity of variance, and it is necessary to continue to judge the T-test results under the equality of variance. If the significance of the T-test is Sig. Less than 0.05 indicates that there is a significant difference in factors. If the significance of t test is greater than 0.05, it indicates that there is no significant difference in factors. If the significance Sig. probability of Levene test for each variable method equation is less than 0.05, it indicates that the factors do not have homogeneity of variance, and it is necessary to continue to judge the T-test results under the variance inequality. Less than 0.05 indicates that there is a significant difference in factors. If the significance of the t test is greater than 0.05, it indicates that there is no significant difference in the factors. Univariate difference analysis was performed for other variables.

5) Structural model checking

Structural model evaluation

Collinear diagnosis

If an endogenous latent variable in a structural model contains two or more interrelated predictive latent variables, This indicates that there is a high degree of correlation between these variables, that is, collinearity. (Hair, Matthews, & Matthews, 2017). When testing, it is usually based on VIF value. When VIF value is not higher than 5, there is no collinearity problem in the model. (Hai, Ringle, & Sarstedt, 2011).

Determination coefficient and prediction correlation

The coefficient of determinability, also known as the decision coefficient, is used to evaluate the prediction accuracy of the model. The value R^2 indicates the proportion or degree to which the variance of the endogenous latent variable is explained by its predicted latent variable. The value R^2 ranges from greater than 0 to less than or equal to 1. If $R^2 = 0$, it indicates that there is no relationship between the endogenous latent variable and the predicted latent variable. If $R^2 = 1$, it indicates a close relationship between the endogenous latent variable and the predicted latent variable. In general, the higher the value of R^2 , the greater the explanatory power of the structural model and the better the prediction ability of endogenous latent variables.

Model goodness of fit

Goodness of Fit (GOF) is an important index used to measure the overall prediction effect of structural equation model in Smart PLS.

Hypothesis testing

In the first step, all the assumed path coefficients are obtained by PLS algorithm in the software.

In the second step, Bootstrapping method was used to test the significance of path coefficients. When the absolute value of the t statistic is greater than 1.96 and the P-value is less than 0.05, the path coefficient is significant, and the hypothesis is valid.

6) Hypothesis testing results and analysis

3.3 Conclusion

This chapter mainly focuses on the collection of data and the introduction of research methods. Data collection mainly includes data sources and ways of use. The corresponding method is used to process and analyze the collected data, and the corresponding results are obtained. The detailed results are presented in the next chapter.

Chapter 4

Results of Data Analysis

4.1 Qualitative research findings

The questionnaire was designed according to the research objectives and five experts were invited to conduct in-depth interviews. The interview results are as follows:

4.1.1 Expert information

This study is based on in-depth interviews with five experts, the five experts are:

- 1) University economics professors,
- 2) Agricultural economics scholars,
- 3) Rural grassroots workers of agricultural insurance in Guangdong Province,
- 4) Agricultural insurance experts in Guangdong Province,
- 5) Experts of agricultural insurance company in Guangdong Province.

The qualitative research results are as follows:

Table 4.1 Could you briefly describe your professional background and experience related to agricultural policy, insurance, or agricultural development in Guangdong Province?

Experts	Answer
Expert 1	“I teach economics, with a focus on theoretical research and practical applications of agricultural economics, especially the interplay between agricultural productivity growth and policy. I have published a number of academic papers on Guangdong's agriculture,

Table 4.1 Could you briefly describe your professional background and experience related to agricultural policy, insurance, or agricultural development in Guangdong Province? (Cont.)

Experts	Answer
	regional high-quality development and policies, especially on how to use financial tools to help farmers improve productivity.”
	development and policies, especially on how to use financial tools to help farmers improve productivity.”
Expert 2	“I have advised several rural development agencies in Guangdong Province, focusing on how to drive economic growth through agricultural and rural revitalization projects. I have helped many rural cooperatives to develop the agricultural chain, especially in the exploration of green agriculture and export-oriented agriculture.”
Expert 3	“I have worked in rural areas for more than 20 years, focusing on the implementation and supervision of agricultural policies, especially how to implement national agricultural policies at the local level. I am responsible for a number of agricultural insurance implementation, promotion, and agricultural technology extension projects. I maintain close contact with farmers to ensure that policies are implemented effectively and adjusted in a timely manner to meet new challenges.”
Expert 4	“I have been engaged in agricultural insurance research for more than 10 years, mainly focusing on live pig agricultural insurance. I have been involved in the formulation of several agricultural policies in Guangdong Province, including policies to promote agricultural modernization and ecological agriculture. I also regularly communicate with farmers and agribusinesses to assess

Table 4.1 Could you briefly describe your professional background and experience related to agricultural policy, insurance, or agricultural development in Guangdong Province? (Cont.)

Experts	Answer
Expert 5	the impact of policy implementation.” “I have worked in the field of agricultural insurance for more than 10 years, mainly responsible for designing products of crop insurance and animal husbandry insurance, and participating in the cooperation of insurance companies to promote these products. My job is to develop insurance products suitable for farmers in Guangdong Province, especially how to reduce farmers' economic losses when dealing with natural disasters such as typhoons and floods.”

Table 4.2 How familiar are you with the agricultural insurance policies implemented in Guangdong, and how have you been involved in this area?

Experts	Answer
Expert 1	“As a professor with a focus on agricultural economics, my research involved in-depth analysis of agricultural insurance policies in Guangdong Province. I work with several insurance companies and agricultural cooperatives across the province to assess the effectiveness of policies through field research and data analysis. I also participated in academic discussions on policy improvements, making recommendations on how to better reach smallholder farmers.”
Expert 2	“I have served as a consultant for several agricultural economic development projects in Guangdong Province and participated in the implementation and promotion of agricultural insurance policies. My

Table 4.2 How familiar are you with the agricultural insurance policies implemented in Guangdong, and how have you been involved in this area? (Cont.)

Experts	Answer
	role is to help the government assess the economic benefits and social impact of agricultural insurance and suggest ways to improve it. I have a good understanding of Guangdong's policies, especially in terms of how to encourage farmers to participate in insurance through policies and improve the resilience of agricultural risks.”
Expert 3	“In Guangdong Province, I have participated in the publicity and promotion of agricultural insurance organized by the government for many times. Farmers in our village are generally insured, so I am very familiar with the operation process and subsidy policy of agricultural insurance. I also communicated with local insurance companies and government departments many times to reflect the needs of grassroots farmers for insurance products and suggestions for improvement.”
Expert 4	“I have been studying live pig insurance for a long time, and have some research on new agricultural insurance, such as exponential agricultural insurance.”
Expert 5	“I work for a large insurance company, responsible for agricultural insurance business in Guangdong Province. I have participated in the development and promotion of a number of agricultural insurance products, especially in western Guangdong, where natural disasters are high. I am familiar with the subsidy structure of the policy and how to promote farmers' participation in insurance through the cooperation of government and market. I have also witnessed the continuous expansion of policy coverage and depth in recent years.”

4.1.2 Understanding the Agricultural Insurance Context in Guangdong Province

Table 4.3 How would you describe the current state of agricultural insurance in Guangdong Province?

Experts	Answer
Expert 1	“Agricultural insurance in Guangdong Province has played a positive role in ensuring farmers' income and promoting sustainable agricultural development. The guidance of the policy is strong, and the coverage is expanding year by year, especially in the risk management brought about by climate change. However, the model of relying on government subsidies may have certain challenges in the long-term development, and how insurance companies can play a greater role in the market-oriented operation is the focus of our current attention.”
Expert 2	“The development of agricultural insurance in Guangdong Province has entered a stable period, but there is still room for improvement. More investment at the policy level and sound premium subsidy system, especially in areas with high frequency of disasters. However, the depth and breadth of insurance in some places are still insufficient, and some farmers are less dependent on insurance and lack risk management awareness. How to further increase policy publicity and optimize the claims process will be the key to the future.”
Expert 3	“Agricultural insurance in Guangdong Province is very helpful to our village, especially in extreme weather conditions, it can provide a safety net for farmers. The government's subsidy policy is very good, reducing the burden of farmers. However, in practice, some claims procedures are complex and long cycles remain, and farmers want to

Table 4.3 How would you describe the current state of agricultural insurance in Guangdong Province? (Cont.)

Experts	Answer
	see more streamlined processes and faster payments.”
Expert 4	“I have been studying live pig insurance for a long time, and have some research on new agricultural insurance, such as exponential agricultural insurance.”
Expert 5	“Guangdong's agricultural insurance market is developing rapidly, and the product types and coverage are expanding year by year. At present, in addition to traditional crop insurance, we have also launched aquaculture insurance and special cash crops, fruit insurance. The policy support is very strong, and the proportion of premium subsidies is high, which attracts more and more farmers to participate. However, challenges remain, such as how to ensure the timeliness and transparency of claims settlement, and how to improve the diversity of insurance products to meet the needs of different farmers.”

Experts believe that Guangdong agricultural insurance is beneficial to farmers, can increase farmers' income and promote the sustainable development of agriculture; Guangdong Province has strong support for agricultural insurance policy. The government promotes the development of agricultural insurance through subsidies, and the coverage is expanded year by year. Diversification of security systems and expansion of insurance coverage; However, the overall claim settlement process is complicated and the cycle is long; The insurance consciousness of farmers in some areas is weak.

Table 4.4 What key challenges or opportunities do you see regarding agricultural insurance in this region?

Experts	Answer
Expert 1	“The main challenges facing agricultural insurance are risk concentration and claim complexity. Frequent typhoons, floods and other disasters in Guangdong Province are prone to large-scale crop losses, which puts huge pressure on insurance companies to pay compensation. The opportunity is that with the development of smart agricultural technology, data-driven agricultural insurance can achieve more accurate insurance design and management, reduce risks and costs, and further promote the use of insurance.”
Expert 2	“A major challenge for agricultural insurance is low insurance awareness among farmers, especially small-scale farmers, who often rely on government assistance rather than insurance. In addition, insurance companies face greater regulatory pressure when settling claims. The opportunity lies in the transformation of Guangdong's agriculture to intensification and modernization. Agricultural insurance can help farmers reduce risks through innovative products and promote the construction and improvement of the rural financial system.”
Expert 3	“The main challenges we face are the complexity and transparency of the claims process. Many farmers reported long claims cycles and complicated procedures, which reduced their incentive to participate in insurance. On the other hand, the opportunity is that with the development of large-scale agriculture, farmers can obtain more favorable insurance rates through collective insurance, which not only reduces costs, but also enhances the ability to share risks.”

Table 4.4 What key challenges or opportunities do you see regarding agricultural insurance in this region? (Cont.)

Experts	Answer
Expert 4	“From a policy perspective, the challenge is how to continuously optimize the regulatory system for agricultural insurance to ensure that policy subsidies effectively reach the farmers who need them most. On the other hand, the opportunities are clear. Guangdong Province is vigorously promoting agricultural modernization and rural revitalization, and agricultural insurance can be used as a financial tool to help farmers withstand natural disasters and market fluctuations and achieve long-term sustainable development.”
Expert 5	“The challenge is mainly risk management and claims efficiency. Guangdong has a high risk of natural disasters. How to design more accurate insurance products and share risks reasonably is our focus. The opportunity is that with the development of digitalization and informatization in rural areas, insurance companies can use big data and remote sensing technology to more accurately assess crop damage and optimize the claims process, thereby increasing customer satisfaction.”

Experts believe that agricultural insurance in Guangdong Province is facing many challenges at this stage: the concentrated risk of natural disasters brings huge pressure on insurance companies to pay compensation; Farmers' insurance consciousness is low, and their participation enthusiasm is low. The complicated process of claim settlement reduces the enthusiasm of farmers. How to implement regulations and policies to ensure that subsidies effectively cover farmers in need. At the same time, there are many opportunities: the development of smart agricultural

technology to help design more accurate insurance products, optimize risk management and claims processes; Agricultural modernization and intensive development to reduce premium costs and enhance risk sharing capacity; Agricultural insurance innovation products can promote the improvement of the rural financial system and help rural revitalization and modernization.

Table 4.5 In your opinion, what are the main objectives of Guangdong agricultural insurance policy?

Experts	Answer
Expert 1	“The overriding objective of the policy is to protect the economic interests of farmers through risk-sharing mechanisms, especially in the context of increasing climate change and the increasing risks facing agriculture. Agricultural insurance policies not only guarantee farmers' income, but also provide basic support for agricultural modernization by promoting the stability of agricultural production. Guangdong Province hopes to promote the sustainable development of agricultural industry through the improvement of insurance policy.”
Expert 2	“I think the main goal of Guangdong's agricultural insurance policy is to promote the sound development of the rural financial system and help farmers improve their risk management capabilities. By means of insurance, farmers can effectively avoid the risks caused by natural disasters and market fluctuations, which is crucial to achieve long-term sustainable development of agriculture. In addition, the policy aims to lower the insurance threshold for farmers through subsidies and enhance their economic resilience.”

Table 4.5 In your opinion, what are the main objectives of Guangdong agricultural insurance policy? (Cont.)

Experts	Answer
Expert 3	“One of the goals of the policy is to ensure that farmers receive timely compensation in the event of natural disasters, guaranteeing their basic income. This is very important for maintaining social stability in the countryside. Another goal is to promote the popularization of agricultural insurance, especially for grass-roots rural areas, through collective insurance to reduce the cost of individual farmers' premiums and improve the coverage.”
Expert 4	“The goal of the policy is to diversify agriculture from the dual risks of nature and the market. Improve the ability of the agricultural sector and agricultural producers to resist and avoid risks.”
Expert 5	“The central objective of the policy is to provide agriculture with effective risk management tools. Guangdong Province is prone to frequent disasters, especially typhoons and floods. The purpose of agricultural insurance is to help farmers reduce economic losses caused by natural disasters and ensure the continuity of agricultural production through economic compensation. We also hope to enhance the process of agricultural modernization through insurance and promote the deep integration of finance and agriculture.”

The main objectives of Guangdong agricultural insurance policy are: to protect farmers' economic interests; Promoting the stability of agricultural production; Improve risk management capabilities; Promote the popularization of agricultural insurance and the improvement of rural financial system to ensure social stability in rural areas.

4.1.3 The willingness and attitude to study the factors affecting the performance of policy agricultural insurance in Guangdong Province

Table 4.6 Do you think it is necessary to study the influencing factors of agricultural insurance performance in Guangdong Province? What factors do you believe have the most significant impact on the performance of agricultural insurance policies in Guangdong?

Experts	Answer
Expert 1	“Yes, it is very important. In this way, we can clearly understand what aspects have affected the performance of agricultural insurance in Guangdong Province, so as to improve it. The main factors affecting the performance of agricultural insurance policy in Guangdong Province are the awareness and participation of farmers. Although the government provides substantial premium subsidies, some small farmers still lack trust in insurance or do not understand the specific benefits of insurance. The government needs to increase publicity and streamline the insurance process to improve coverage and effectiveness of policies.”
Expert 2	“The research is necessary, which is necessary to rapidly improve the development of agricultural insurance in Guangdong Province. The intensity of policy subsidy is an important factor affecting the performance of agricultural insurance. If the subsidy is insufficient, the willingness of farmers to take out insurance will be greatly reduced. In addition, the fragmented nature of agricultural production is also a problem, small farmers are widely spread, and insurance companies face higher costs in administration and claims, which also affects the practical effects of policies. The depth and breadth of cooperation a

Table 4.6 Do you think it is necessary to study the influencing factors of agricultural insurance performance in Guangdong Province? What factors do you believe have the most significant impact on the performance of agricultural insurance policies in Guangdong? (Cont.)

Experts	Answer
	between financial institutions and the government will also directly affect the efficiency of policy implementation.”
Expert 3	“This is important, and it plays a big role in farmers' income and risk protection. The speed of claims settlement and the experience of farmers are among the biggest factors affecting the performance of agricultural insurance policies. Many farmers' first impression of insurance comes from the claims process, and if claims take too long or the process is cumbersome, their confidence in insurance will be reduced, which in turn affects the coverage and effectiveness of the policy.”
Expert 4	“This is important for the development of new types of agricultural insurance in the future. Enforcement by local governments. Whether local governments can effectively promote the implementation of policies, especially in remote and economically underdeveloped areas, is the key to affecting performance.”
Expert 5	“This is very important for insurance companies to improve their products. The design flexibility and pertinence of insurance products are important factors affecting policy performance. At present, some products on the market are too standardized and fail to fully consider the actual needs of farmers. The climate and geographical environment of Guangdong Province are diversified, and more personalized insurance products are needed to better match the risk needs of

Table 4.6 Do you think it is necessary to study the influencing factors of agricultural insurance performance in Guangdong Province? What factors do you believe have the most significant impact on the performance of agricultural insurance policies in Guangdong? (Cont.)

Experts	Answer
	different farmers. In addition, the degree of simplification of the claims process will also directly affect farmers' acceptance of insurance.”

Experts believe that the main factors affecting the performance of Guangdong agricultural insurance policy are: farmers' insurance consciousness and participation; The intensity of policy subsidies; Claims speed and experience; Local government implementation intensity; Flexibility and targeting of insurance products.

4.1.4 Key factors influencing the performance of policy agricultural insurance in Guangdong Province

Table 4.7 From which perspective (government, farmers, insurance companies) do you think it will be more comprehensive to discuss the performance of policy agricultural insurance in Guangdong Province?

Experts	Answer
Expert 1	“It is the most realistic Angle to discuss the performance from the perspective of farmers. The ultimate purpose of policy agricultural insurance is to protect the interests of farmers and help them avoid risks. Therefore, farmers' participation rate, acceptance of insurance and post-claim feedback are important criteria to assess whether the policy really benefits the grassroots. If farmers' needs are not met, the

Table 4.7 From which perspective (government, farmers, insurance companies) do you think it will be more comprehensive to discuss the performance of policy agricultural insurance in Guangdong Province? (Cont.)

Experts	Answer
	policy can hardly be described as successful.”
Expert 2	“The most comprehensive perspective should be the comprehensive perspective. The performance of policies depends not only on how well governments design and implement them, but also on how effectively insurance companies deliver services and whether farmers benefit from them. Therefore, a comprehensive analysis from the government, farmers and insurance companies can more comprehensively reveal the effectiveness of the policy and the room for improvement.”
Expert 3	“I believe that the farmer's perspective should be central to assessing policy performance. Farmers are the end users of insurance, and their satisfaction, claims experience, and knowledge and trust in the policy are decisive factors in the long-term success of the policy. If farmers lack trust in insurance or believe that insurance cannot effectively protect their interests, then the implementation effect of the policy will be greatly reduced.”
Expert 4	“The best way to comprehensively discuss the performance of policy agricultural insurance is to combine the perspectives of the government, farmers and insurance companies. The parties are interdependent, the policies are designed by the government, the farmers are the beneficiaries of the policies, and the insurance companies are the implementer. To evaluate whether the policy is effective, we need to consider all aspects, especially the effect of the

Table 4.7 From which perspective (government, farmers, insurance companies) do you think it will be more comprehensive to discuss the performance of policy agricultural insurance in Guangdong Province? (Cont.)

Experts	Answer
Expert 5	policy in practical application.” “The combination of insurance companies and farmers may be more comprehensive. Insurers engage directly with farmers to understand their needs and feedback, while balancing their own profitability and sustainability. Therefore, the performance of insurance companies in designing products, processing claims and the feelings of farmers can be a good measure of whether the policy is working in practice.”

Some experts believe that it can be discussed from the perspective of farmers, who are the ultimate beneficiaries of insurance, and assessing their participation rate, satisfaction and claim settlement experience can directly reflect the actual effect of the policy.

Some experts believe that a comprehensive perspective is more appropriate, combining the perspectives of the government, farmers and insurance companies is the most comprehensive, and policy design, implementation and the actual benefits of farmers will affect each other.

Some experts believe that the combination of insurance companies and farmers is better, and the interaction between insurance companies and farmers plays a key role in product design, service and claim settlement, which can better measure the actual application effect of policies.

Table 4.8 How do you see the relationship between farmers, insurers, and the government in implementing agricultural insurance policies?

Experts	Answer
Expert 1	“The relationship between farmers, insurance companies and the government in agricultural insurance policy can be viewed from the perspective of cooperation and synergy. The government promotes insurance coverage through policies and subsidies, while insurance companies translate these policies into specific insurance products and services, and farmers are the main beneficiaries of policies. The government needs to formulate reasonable policies, insurance companies need to provide quality services, and farmers need to actively participate in order to achieve policy goals.”
Expert 2	“In the implementation of agricultural insurance policy, the relationship between the government, insurance companies and farmers is a multi-level cooperative relationship. In order to achieve the objectives of agricultural insurance policies, governments need to ensure that policies are scientific and operational, insurance companies need to improve service efficiency and product quality, and farmers need to actively participate and provide feedback. The effective interaction and cooperation among the three is the key to the success of the policy.”
Expert 3	“The relationship between farmers, insurance companies and the government should be mutually supportive and supportive. Government policies and subsidies provide economic security for farmers, and insurance companies need to provide insurance products and services that meet the actual needs.”

Table 4.8 How do you see the relationship between farmers, insurers, and the government in implementing agricultural insurance policies? (Cont.)

Experts	Answer
Expert 4	“In the implementation of agricultural insurance policy, the relationship between insurance companies, farmers and the government can be seen as a process of cooperation and feedback. Policies and subsidies formulated by the government directly affect the design and marketing of insurance products, and insurance companies need to provide appropriate products and services according to policy requirements. Farmer participation and satisfaction are key to measuring policy success. If the farmers are not satisfied with the insurance products or the insurance willingness is low, the best policy is difficult to achieve the expected effect. The government is the main guide and decides the implementation result. Insurance companies play a bridging role in this process, ensuring that policies are effectively implemented at the grassroots level. The product supply capacity of insurance company also directly determines the implementation effect of insurance.”
Expert 5	“In my opinion, the relationship between farmers, insurance companies and the government in implementing agricultural insurance policies is mutually reinforcing. Government policy design and financial subsidies are the basis for promoting agricultural insurance, but the final implementation and effect depend on the operation of insurance companies and the acceptance of farmers. The government needs to work closely with insurance companies to ensure policy implementation and service quality, while also listening to farmers to understand their needs and feedback to optimize policy and product design.”

Experts believe that the relationship between farmers, insurance companies and the government in agricultural insurance policies is as follows: the government formulates policies, promotes the implementation of policies and provides subsidies. Subsidies will affect the insurance participation behaviors of farmers, and the government is the main guide and determines the implementation results. Insurance companies transform policies into specific insurance products and services, and the supply capacity of insurance companies directly determines the implementation effect of insurance. Farmers are the main beneficiaries, farmers' participation and satisfaction determines the actual effectiveness of policies, and farmers' needs and feedback influence the optimization of policies.

Table 4.9 From your perspective, how well do agricultural insurance policies align with the needs and risks faced by farmers in Guangdong Province?

Experts	Answer
Expert 1	“Guangdong's agricultural insurance policy has done a good job in coping with major natural disasters and guaranteeing farmers' basic income, but it needs to be further improved to fully meet farmers' needs and risks. For example, policies need to take into account other risks in agricultural production, such as market volatility and the long-term effects of climate change. In addition, improving the adaptability and flexibility of policies, as well as improving the coverage and depth of insurance products, is the key to improving the effectiveness of policies.”
Expert 2	“Agricultural insurance policies in Guangdong Province largely meet the basic needs of farmers, especially in terms of covering common natural disasters and providing economic security. However, policies may fall short in addressing the needs of farmers of different sizes and

Table 4.9 From your perspective, how well do agricultural insurance policies align with the needs and risks faced by farmers in Guangdong Province? (Cont.)

Experts	Answer
	types, especially in covering small-scale farmers or emerging risks. Therefore, refinement and targeted improvement of policies are necessary to better adapt to diversified risks and needs.”
Expert 3	“The current agricultural insurance in most cases is in line with the needs of farmers, especially those who face the risk of natural disasters. However, some details in the implementation of the policy, such as the setting of premiums and the speed of claims settlement, may affect its effectiveness. For some smaller cooperatives or special farming models, existing policies may not be detailed or flexible enough. More attention needs to be paid to local differences and specific needs to better serve different types of farmers and agricultural production.”
Expert 4	“The agricultural insurance policy of Guangdong Province considers the main needs and risks of farmers as a whole. However, at this stage, traditional insurance products may not be able to fully meet the new needs, and they need to be constantly adjusted to cope with emerging risks and meet the needs of different types of farmers.”
Expert 5	“Guangdong's agricultural insurance policy has done a better job in dealing with major risks, but there may be some gaps in meeting the specific needs of farmers and dealing with all potential risks. For example, some special agricultural varieties or production methods may not be fully covered. In addition, the complexity of insurance products and the claims process may confuse some farmers, so insurance products and services need to be further simplified and optimized to better meet the actual needs of farmers.”

The policy agricultural insurance in Guangdong Province can cope with the main natural disasters well and provide basic income guarantee for farmers, which meets the needs of most farmers. But differentiated products are insufficient; In response to long-term or emerging risks such as market fluctuations and climate change, products still need to be improved to enhance adaptability and flexibility; Insurance products need to be simplified and optimized.

Table 4.10 How do farmers generally perceive agricultural insurance in this region?

What factors influence their decision to participate or not participate in insurance schemes?

Experts	Answer
Expert 1	“Most farmers hold a neutral view on agricultural insurance. They recognize that agricultural insurance can help mitigate the economic losses caused by disasters to a certain extent, but many people feel that the role of insurance is limited, especially in terms of the amount and timeliness of claims. The main factors influencing their decision to participate in the insurance are risk awareness, understanding of the insurance claims terms, past claims experience, and whether there is direct financial pressure.”
Expert 2	“Farmers' views on agricultural insurance are influenced by many factors. Many farmers believe that insurance has a certain value, especially in the face of disasters such as typhoons and floods, but some farmers think that insurance is "not useful" or "trouble to settle claims". Factors that determine their participation include their financial ability, their understanding of insurance, and the extent of government subsidies and promotion. Farmers often opt out of insurance if they find it complicated or uneconomical.”

Table 4.10 How do farmers generally perceive agricultural insurance in this region?
What factors influence their decision to participate or not participate in
insurance schemes? (Cont.)

Experts	Answer
Expert 3	“Economic pressures and the perception of disaster risk are the main factors influencing farmers' decisions. Government subsidy policies and publicity efforts will also play a positive role.”
Expert 4	“Farmers' views on agricultural insurance are influenced by many factors. Many farmers believe that insurance has a certain value, especially in the face of disasters such as typhoons and floods, but some farmers think that insurance is "not useful" or "trouble to settle claims". Factors that determine their participation include their financial ability, their understanding of insurance, and the extent of government subsidies and promotion. Farmers often opt out of insurance if they find it complicated or uneconomical.”
Expert 5	“Farmers' perceptions of agricultural insurance are often based on their past claims experience. Those farmers who have successfully settled claims generally have a high degree of recognition of insurance, while farmers who have no claims experience or difficulties in settling claims are skeptical about insurance. The main factors that determine farmers' participation in insurance are the transparency and speed of insurance claims settlement, the comprehensibility of insurance products, and the availability of government subsidies for premiums.”

Experts believe that at this stage, most farmers in Guangdong Province hold a neutral attitude toward agricultural insurance, recognizing that it can reduce economic losses, but there are doubts about the actual role of insurance, the amount of claims and timeliness.

The determinants affecting their participation or non-participation in the insurance plan are: their own risk awareness; Their own economic capacity; Understanding of agricultural insurance; Previous claims settlement experience; Government subsidies and propaganda.

Table 4.11 How is the implementation of policy agricultural insurance policy in Guangdong Province?

Experts	Answer
Expert 1	“The policy agricultural insurance in Guangdong Province is well designed in theory, especially the prevention of major disasters and the subsidy system have helped many farmers. The updating rate of the policy is high, and reasonable adjustment can be made according to the feedbacks of farmers in time. In addition, the implementation of the policy also needs more grassroots organization and personnel support to ensure that insurance products can truly serve all farmers in need.”
Expert 2	“The government has provided subsidies, and farmers' participation rates remain low in some areas. This is mainly attributed to some farmers' poor understanding of insurance, believing that the premium input is disproportionate to the return. Therefore, policy advocacy and education still need to be strengthened.”
Expert 3	“Farmers' response to policy agricultural insurance was generally positive, and government subsidies made it more attractive for farmers to participate in insurance. There are also some problems in the implementation of the policy, such as farmers' poor understanding of the insurance terms, and some of the claims process is too complicated. These problems need to be addressed through more training and advocacy in grass-roots outreach.”

Table 4.11 How is the implementation of policy agricultural insurance policy in Guangdong Province? (Cont.)

Experts	Answer
Expert 4	“The government's subsidies have been implemented in place, and the subsidies have been strengthened year by year, greatly reducing the pressure on farmers, and the participation rate of agricultural insurance has been better improved. The government's response to farmers was prompt and it was able to adjust and modify the program quickly.”
Expert 5	“There are still some problems in the actual implementation of the policy, such as possible delays in the process of claims settlement, and farmers' acceptance of insurance needs to be improved.”

Guangdong Province policy agricultural insurance policy is well implemented, the policy has a good design in theory; Policies can be reasonably adjusted according to farmers' feedback; Government subsidies have been strengthened year by year, reducing the pressure on farmers and improving the insurance participation rate; But policy advocacy and education are lacking; There is insufficient supervision over the execution of claims.

Table 4.12 How do you think government subsidies and support affect the implementation of agricultural insurance?

Experts	Answer
Expert 1	“Government subsidies have played a central role in promoting agricultural insurance. Subsidies greatly reduce the financial burden on farmers and incentivise them to buy insurance. Subsidies are not only economic support, but also a reflection of the government's attitude towards farmers' risk protection, which increases farmers' trust in the policy.”

Table 4.12 How do you think government subsidies and support affect the implementation of agricultural insurance? (Cont.)

Experts	Answer
Expert 2	“Government subsidies and support are the key factors to promote the implementation of agricultural insurance. Agricultural insurance premiums are often higher, especially for small-scale farmers. Through the government's subsidy policy, the insurance cost of farmers has been greatly reduced, and the enthusiasm of farmers to participate in insurance has been greatly improved. In addition, government support is also reflected in policy formulation and regulation to ensure that insurance companies can provide products suited to farmers' needs and maintain market stability.”
Expert 3	“Government subsidies are a major driver of agricultural insurance promotion, especially in grassroots organizations like ours, where government support determines whether farmers have enough incentive to enroll. Subsidies make farmers feel that the cost of risk is reduced, especially in areas where natural disasters such as typhoons are frequent, and farmers' willingness to participate in insurance is significantly increased. In addition, the government's support is not only reflected in premiums, but also in publicity and promotion activities to help farmers better understand and trust insurance.”
Expert 4	“Government subsidies and support have played a crucial role in the promotion of agricultural insurance. Subsidies reduce the economic threshold for farmers to participate in insurance, especially in economically underdeveloped areas, government subsidies are the decisive factor for farmers to participate in insurance. government support can help improve the sustainability of the entire agricultural

Table 4.12 How do you think government subsidies and support affect the implementation of agricultural insurance? (Cont.)

Experts	Answer
	insurance system, ensuring that insurers have sufficient resources to deal with large-scale disasters. Subsidies also increase farmers' confidence in the policy and promote the continued promotion of insurance.”
Expert 5	“Government subsidies directly affect the penetration rate of agricultural insurance. Many times, the need for insurance exists among farmers, but they may choose not to enroll because of the higher premiums. With government subsidies, insurance companies can come up with more competitive products that are more acceptable to farmers.”

Guangdong Province policy agricultural insurance policy is well implemented, the policy has a good design in theory; Policies can be reasonably adjusted according to farmers' feedback; Government subsidies have been strengthened year by year, reducing the pressure on farmers and improving the insurance participation rate; But policy advocacy and education are lacking; There is insufficient supervision over the execution of claims.

Table 4.13 How do you think Insurance Supply Capacity affects the implementation of agricultural insurance?

Experts	Answer
Expert 1	“The ability of insurance supply is reflected in the diversity of insurance products and the efficiency of the claim settlement mechanism. If the supply capacity of insurance is strong, insurance companies can design diversified products for different types of

Table 4.13 How do you think Insurance Supply Capacity affects the implementation of agricultural insurance? (Cont.)

Experts	Answer
	farmers and risks, which can well meet the needs of farmers. However, insufficient supply capacity often leads to a single insurance product, which cannot fully cover the risks faced by farmers, and the claims settlement process may also be cumbersome and inefficient, reducing farmers' willingness to participate in insurance.”
Expert 2	“Insurance supply ability directly determines the coverage breadth and depth of agricultural insurance. If the insurance company lacks sufficient resources and technical support, the types of insurance products and service quality will be limited, which will affect the enthusiasm of farmers to participate in insurance. In addition, the supply capacity is also reflected in the efficiency of claims and customer service. Insurance companies with strong supply capacity can process claims more quickly, improve farmers' confidence in insurance, and thus promote the widespread implementation of insurance.”
Expert 3	“The supply capacity of the insurance company directly affects the attitude of our farmers towards agricultural insurance. Insurance companies with strong supply capacity can provide more flexible products with a wide range of coverage, and are timelier and more reliable in claims and after-sales service. This allows farmers to be compensated quickly if they encounter risks. However, if supply capacity is insufficient, farmers may opt out of insurance for fear of delays in settling claims or insufficient coverage.”

Table 4.13 How do you think Insurance Supply Capacity affects the implementation of agricultural insurance? (Cont.)

Experts	Answer
Expert 4	“Insurance supply capacity plays a key role in the implementation of agricultural insurance. High supply capacity insurance companies can provide comprehensive risk protection, including natural disasters, pests and other agricultural risks. At the same time, supply capacity also includes financial and service capacity, especially in the event of a large-scale disaster, whether the insurance company has enough capital and personnel to meet the demand for compensation. If the supply capacity is not strong, farmers may lose confidence in insurance and reduce the participation rate.”
Expert 5	“The supply ability of insurance plays an important role in the implementation of agricultural insurance. First, supply capacity determines whether we can provide targeted insurance products for different regions and different crops. Second, insurance companies need to have sufficient financial and technical capacity to cope with the demand for payouts after large-scale natural disasters. Insufficient supply capacity can lead to delayed claims or inadequate product services, thereby affecting farmers' trust and reliance on agricultural insurance.”

Insurance supply capacity affects the popularization and implementation effect of agricultural insurance; Affect product diversity and coverage; Determining claims efficiency and service quality; Affecting farmers' confidence and willingness to participate in insurance; The ability to respond to large-scale disasters.

Table 4.14 In your opinion, is the design of policy agricultural insurance in Guangdong Province reasonable? Is the premium reasonable?

Experts	Answer
Expert 1	“The product design of policy agricultural insurance in Guangdong Province is scientific in general, and the product types are diverse and cover the main natural disaster risks. However, the rationality of the insurance premium varies according to the economic conditions of the region and farmers. In some wealthy areas, premiums are reasonable after subsidies, but in remote and poor areas, despite the existence of subsidies, premiums are still a major obstacle for farmers to participate in insurance.”
Expert 2	“The product design of policy agricultural insurance in Guangdong Province is reasonable on the whole. The product covers common natural disasters and farmers' risks, especially for the local unique natural disaster risks such as typhoon and flood, and the coverage is relatively comprehensive. After the insurance premium is subsidized by the government, the burden of farmers is relatively small and reasonable. However, some small farmers still reflect that premiums may still be high in disaster-prone years, and further optimization of rate flexibility is needed in the future.”
Expert 3	“I think the policy agricultural insurance product design in Guangdong Province is reasonable, and there are different agricultural insurance products in specific regions. For example, there are Lingnan characteristic fruit insurance. However, some farmers, especially small-scale farmers, feel that even with subsidies, insurance premiums are still high in some years, which affects their willingness to

Table 4.14 In your opinion, is the design of policy agricultural insurance in Guangdong Province reasonable? Is the premium reasonable? (Cont.)

Experts	Answer
	participate in insurance.”
Expert 4	“At this stage, Guangdong policy agricultural insurance has a lot of unique products, the province's tropical fruits are all included in Lingnan fruit insurance subsidy varieties, new flower seedlings, tea, meat ducks, laying hens, freshwater aquaculture aquatic products, Marine cage aquaculture provincial subsidy insurance types, basically achieve full coverage of major breeding varieties in the province. The reasonableness of the premium remains a matter of debate. Although government subsidies have reduced premiums to some extent, premiums can still be too high for some farmers with poorer economic conditions. Product pricing models can be further adjusted to take into account the ability of farmers in different regions to pay and specific risk levels.”
Expert 5	“From the perspective of product design, the policy agricultural insurance in Guangdong Province has taken into account a variety of agricultural risks, and the flexibility of the product is high, which can be adjusted according to the needs of different regions. After government subsidies, the insurance premium is generally reasonable, especially in the case of frequent natural disasters, and the cost performance of the premium is relatively high. However, for some special crops and livestock farming, premiums may still need to be further adjusted to better match farmers' needs and ability to pay.”

On the whole, the design of policy agricultural insurance in Guangdong Province is scientific and reasonable, with rich product types and flexibility, which can

adapt to the needs of different regions. Under the background of government subsidies, most farmers think the premium is reasonable; However, there are regional differences in the rationality of insurance premiums, more flexibility can be considered to adapt to the economic conditions and risk levels of different regions, so as to further improve the enthusiasm of farmers to participate in insurance.

Table 4.15 Does the service level of Guangdong policy agricultural insurance Company meet the needs of farmers?

Experts	Answer
Expert 1	“The service level of agricultural insurance in Guangdong Province has basically met the needs of farmers in some areas, especially in areas prone to natural disasters, and farmers have a high evaluation of the speed of claim settlement and service attitude. However, it is hoped that the transparency and convenience of insurance services can be improved, especially in terms of simplifying the claims process and reducing the time it takes to settle claims. If the insurance company can further improve the efficiency of grass-roots services, it will be more conducive to the promotion of agricultural insurance.”
Expert 2	“The service level of Guangdong Agricultural Insurance Company is satisfactory on the whole, especially in some main production areas, the service system is relatively sound. However, some small farmers reflect that the specific operation process of insurance claims is a little cumbersome, and farmers have difficulties in understanding insurance clauses, leading to misunderstandings and communication barriers in actual operation. Therefore, insurance companies need to strengthen the transparency of services and farmers' training and education, so that farmers can better understand and use insurance services.”

Table 4.15 Does the service level of Guangdong policy agricultural insurance Company meet the needs of farmers? (Cont.)

Experts	Answer
Expert 3	“As a rural grass-roots person, I work with a number of insurance companies. On the whole, Guangdong Province's agricultural insurance service level is good, especially in the insurance promotion and post-disaster claims, insurance companies do more timely. However, some farmers have reported that insurance companies sometimes do not respond quickly enough when they encounter problems, especially in more complex claims cases. It is hoped that insurance companies can further improve the response speed of services and strengthen communication with farmers.”
Expert 4	“The service level of Guangdong Agricultural Insurance Company is in line with the needs of farmers on the whole, but it needs to be improved in some aspects. Farmers generally respond well to claims services, especially when it comes to payments after natural disasters, and insurance companies are praised for their performance. However, the regional differences of services are large, and the services in remote areas are relatively weak, and the insurance awareness and participation enthusiasm of farmers are also affected. Therefore, insurance companies need to strengthen the coverage and quality of services in these areas.”
Expert 5	“Insurance companies attach great importance to improving service quality, especially to provide farmers with more convenient insurance purchase and claim settlement services. In cooperation with local governments and grassroots organizations, farmers are ensured, as far as possible, to receive timely compensation in the face of disasters.

Table 4.15 Does the service level of Guangdong policy agricultural insurance Company meet the needs of farmers? (Cont.)

Experts	Answer
	However, we also recognize that services can continue to be optimized, especially in remote areas, and investment in technology and human resources needs to be strengthened to ensure that every farmer can enjoy the same level of service.”

The service level of Guangdong Agricultural Insurance Company can meet the needs of farmers on the whole, and the compensation speed is relatively good, but the compensation process and compensation time need to be optimized. Service differentiation is still obvious, remote areas need to pay more attention.

The overall evaluation of agricultural insurance service level in Guangdong Province is good, especially in the post-disaster claim settlement. However, the regional difference of service is obvious, and the service in remote areas is relatively weak; The claims process, response speed and communication efficiency need to be improved; Transparency and convenience need to be improved.

In the future, we can further optimize the agricultural insurance service by simplifying the claims process, shortening the claims time, improving the response speed and strengthening the cooperation with the government and grassroots organizations, and improve the enthusiasm and satisfaction of farmers.

4.1.5 Guidance and support

Table 4.16 What improvements or policy adjustments do you think are necessary to enhance agricultural insurance performance in Guangdong Province?

Experts	Answer
Expert 1	“The government should strengthen the insurance education and

Table 4.16 What improvements or policy adjustments do you think are necessary to enhance agricultural insurance performance in Guangdong Province?
(Cont.)

Experts	Answer
	publicity of farmers to improve their understanding and trust in insurance products. Improving the service level of insurance companies, claims speed and process simplification are crucial. At the same time, the policy can consider the introduction of more innovative insurance products to respond to the changing needs of farmers.”
Expert 2	“In order to improve the performance of agricultural insurance in Guangdong Province, it is necessary to strengthen the support for small farmers at the policy level. Although there are currently subsidy policies, the coverage and proportion of subsidies can be further improved, especially for vulnerable groups. Secondly, it is necessary to establish a more complete risk diversification mechanism, such as the establishment of agricultural insurance catastrophe insurance, to ensure that in the event of large-scale disasters, insurance companies have sufficient financial capacity to pay. In addition, the government and insurance companies should strengthen cooperation to improve the flexibility and applicability of insurance products to meet the needs of different farmers.”
Expert 3	“In my opinion, to improve the performance of agricultural insurance, we must first improve the coverage of grass-roots service outlets to ensure that every farmer can obtain insurance services in a timely manner. Secondly, the government can provide more insurance education to help farmers understand insurance clauses and actively participate in insurance programs. In addition, transparency

Table 4.16 What improvements or policy adjustments do you think are necessary to enhance agricultural insurance performance in Guangdong Province?
(Cont.)

Experts	Answer
	and efficiency of the claims process are important, and insurance companies need to ensure that they can respond quickly after disasters and provide compensation to farmers in a timely manner.”
Expert 4	“The government should increase financial support for agricultural insurance to ensure that insurance companies have sufficient compensation capacity in major disaster years. Second, insurance companies and government departments should be promoted to strengthen data sharing and use big data analytics to optimize risk assessment and claims processes. Finally, the government can introduce more financial and technological innovations to improve the coverage and accuracy of agricultural insurance.”
Expert 5	“The key to improve the performance of agricultural insurance is to optimize the claims process and improve the service level. There is a need to streamline the process and speed up payments. In addition, the government can further expand insurance coverage and promote new agricultural insurance products to better address diversified agricultural risks. At the same time, the training level and insurance awareness of grassroots personnel should be improved to ensure that farmers can clearly understand and use insurance services.”

At the policy level, we need to increase support for farmers, especially small farmers and vulnerable groups, and increase the coverage and proportion of financial subsidies. Strengthen the insurance education of farmers and help farmers to improve their cognition and trust in agricultural insurance. Through publicity activities and

education and training, farmers' understanding of insurance clauses is improved, and their initiative to participate in agricultural insurance projects is enhanced. Insurance companies expand the coverage of insurance service outlets to ensure that each farmer can easily access insurance services. The level of training of grassroots personnel needs to be improved to ensure that they can provide timely and effective insurance services to farmers. Improve the speed and transparency of claims settlement, simplify the claims process, and ensure that farmers can receive compensation quickly after a disaster. The optimization of the claims process is not only about speed, but also about simplicity and transparency of operations to reduce disputes.

The government and insurance companies should jointly establish a sound risk diversification mechanism, especially the establishment of agricultural insurance catastrophe insurance system, in order to cope with large-scale disasters. Through data sharing between the government and insurance companies, the use of big data for risk assessment and optimization of claims processes can further improve performance.

Promote financial and technological innovation, optimize agricultural insurance products and services through big data, intelligent technology and other means, and improve the accuracy and coverage of agricultural insurance to cope with the changing agricultural risk environment in Guangdong Province.

Table 4.17 Are there specific technologies or innovations that could improve risk assessment, data collection, or claims processes in agricultural insurance?

Experts	Answer
Expert 1	“Its devices offer new avenues for risk assessment and data collection in agricultural insurance. For example, smart sensors can monitor soil moisture, temperature, precipitation and other data in real time and transmit this information directly to insurance companies. With it, insurance companies can more accurately assess specific risks to their fields, reduce human error, and provide farmers with immediate

Table 4.17 Are there specific technologies or innovations that could improve risk assessment, data collection, or claims processes in agricultural insurance?
(Cont.)

Experts	Answer
	feedback to improve crop management.”
Expert 2	“At present, the use of remote sensing technology for agricultural risk assessment has become an effective means. Through satellite remote sensing technology, the growth of crops, weather changes and the occurrence of natural disasters can be monitored in real time, so as to accurately assess the risks faced by crops. This technology not only improves the accuracy of insurance companies in risk management, but also greatly simplifies the claims process and reduces the time and cost of human investigations.”
Expert 3	“Cellphone-based mobile applications are a convenient technological innovation for both farmers and insurance companies. Through these apps, farmers can upload photos or videos of their crops growing, record weather conditions, and even submit claims online. This not only improves the efficiency of information collection, but also provides farmers with convenient insurance management tools and reduces the difficulty of participating in insurance plans.”
Expert 4	“Satellite imagery combined with drone technology has proven to be an effective tool for risk assessment and disaster tracking in agricultural insurance. Drones can quickly capture images of crops after damage, helping insurance companies assess damage more quickly. Compared with traditional manual investigation methods, drones greatly shorten the time of post-disaster investigation, and can provide more objective data, which is conducive to the rapid

Table 4.17 Are there specific technologies or innovations that could improve risk assessment, data collection, or claims processes in agricultural insurance?
(Cont.)

Experts	Answer
Expert 5	processing of claims.” “The combination of artificial intelligence (AI) and machine learning is significantly changing the way agricultural insurance operates. Through machine learning algorithms, insurance companies are able to quickly analyze large amounts of historical and real-time data to automatically identify potential risks and generate personalized insurance plans. In addition, AI can automatically process a large number of claims in the claims process, screen out anomalies and speed up the approval of regular claims, thereby significantly improving the efficiency of claims settlement.”

At present, there are many technologies that can improve agricultural insurance:

1) Internet of Things technology: Through the real-time monitoring of soil moisture, temperature and other data by smart sensors, the Internet of Things provides more accurate risk assessment for agricultural insurance and reduces human error. In addition, this real-time data can help farmers better manage their crops and improve agricultural productivity.

2) Remote sensing technology: Satellite remote sensing technology can monitor crop growth and natural disasters in real time, so as to accurately assess agricultural risks. This technology not only improves insurance companies' risk management capabilities, but also streamlines the claims process and reduces investigation costs.

3) Mobile apps: Mobile phone-based apps make it easy for farmers to upload crop information, submit claims and manage insurance, simplifying insurance participation and administration, and improving data collection efficiency.

4) Uav and satellite images: UAV technology combined with satellite images can quickly capture post-disaster crop losses and provide objective data, thereby shortening the investigation time and improving the speed of claims settlement.

5) Artificial Intelligence and machine learning: AI and machine learning can automatically identify risks and generate personalized insurance plans by analyzing large amounts of data, while optimizing the claims process, speeding up approvals and screening out abnormal claims, and improving the efficiency of claims settlement.

Table 4.18 How do you see the future of agricultural insurance evolving in Guangdong, especially in light of emerging challenges or opportunities?

Experts	Answer
Expert 1	“Guangdong Agricultural insurance will continue to develop in the direction of intelligence and refinement in the future. As climate change intensifies, agricultural risks facing Guangdong will become more complex and diverse, and insurance companies need to dynamically adjust risk assessment models through big data and artificial intelligence. The application of these technologies is an opportunity for the future, but at the same time, the challenge is how to make these new technologies truly available to grassroots farmers, especially in the promotion and education of agricultural insurance.”
Expert 2	“The future development of agricultural insurance in Guangdong is facing huge opportunities, especially with the support of national policies, the coverage rate of agricultural insurance will be further improved. However, new challenges are emerging, in particular the uncertainty posed by climate change, which makes risk assessment

Table 4.18 How do you see the future of agricultural insurance evolving in Guangdong, especially in light of emerging challenges or opportunities? (Cont.)

Experts	Answer
	more difficult. In order to meet these challenges, Guangdong needs to strengthen multi-party cooperation, including the government, insurance companies and technology enterprises to jointly promote the application of insurance technology and improve the response capacity of agricultural insurance.”
Expert 3	“From the perspective of grassroots farmers, the future of Guangdong agricultural insurance is full of expectations, but it also faces some challenges. Climate change and the increasing frequency of crop diseases are making insurance an increasingly necessary safeguard. The future opportunities lie in how governments and insurance companies can use new technologies, such as drones and the Internet of Things, to improve the speed and accuracy of insurance claims. At the same time, the challenge is to make insurance services tailored to their needs accessible to smallholder farmers.”
Expert 4	“The future of Guangdong agricultural insurance has great potential in the context of global climate change and scientific and technological progress. With climate change bringing more uncertainty, the demand for agricultural insurance will increase in the future, and insurance products against extreme weather in particular will become more important. However, the challenge is also how to ensure the fairness and transparency of insurance products and the convenience of services through technological means, such as blockchain and big data, so that farmers are more willing to participate in insurance programs.”

Table 4.18 How do you see the future of agricultural insurance evolving in Guangdong, especially in light of emerging challenges or opportunities? (Cont.)

Experts	Answer
Expert 5	“From the perspective of the insurance industry, the future of Guangdong agricultural insurance will rely more on the promotion of technological innovation, such as satellite remote sensing, big data analysis and other technologies, which can improve the accuracy of risk assessment and claim settlement efficiency. However, the challenge is to expand market penetration, especially among small-scale farmers and remote areas. Future opportunities lie in developing more customised and flexible insurance products to help farmers better cope with the risks of climate change and market volatility.”

Views on the future development of Guangdong agricultural insurance are summarized as follows:

1) Intelligent and technology-driven: With the complex risks brought by climate change, agricultural insurance will develop in the direction of intelligence and refinement. Technologies such as big data, artificial intelligence, drones and the Internet of Things will improve the accuracy of risk assessment and the efficiency of claims settlement. This is an opportunity for the future, but the challenge is how to make these technologies better accepted and used by grassroots farmers.

2) Policy support and cooperation: The support of national policies provides opportunities for the expansion of agricultural insurance coverage. Guangdong needs to strengthen the cooperation between the government, insurance companies and technology enterprises to promote the application of insurance technology and improve the ability to cope with the uncertainties and emerging risks caused by climate change.

3) Grassroots outreach and education: Climate change increases the need for agricultural insurance, especially in the context of frequent extreme weather. However, how to make customized insurance services accessible to small farmers and increase market penetration in remote areas is a big challenge. Education and outreach will be key.

4) Technological fairness and transparency: Future development will rely on technological innovations, such as blockchain and big data analytics, to help ensure the fairness, transparency and convenience of insurance products and increase farmers' willingness to participate in insurance.

5) Customized insurance products: In the face of climate change and market fluctuations, the development of more flexible and personalized insurance products will become an important direction of agricultural insurance to help farmers better cope with future challenges.

4.2 Quantitative research findings

Study on influencing factors of policy agricultural insurance performance in Guangdong Province. Quantitative research is divided into several steps. The analysis in this study is as follows:

4.2.1 Sample information, Descriptive analysis of the variables and Normal distribution test

4.2.2 Reliability analysis

4.2.3 Analysis of validity

4.2.4 Correlation Analysis

4.2.5 Structural equation model analysis

4.2.1 Descriptive analysis

4.2.1.1 Sample information

According to the results in Table 3.2, a total of 400 questionnaires were sent out, including 14 invalid questionnaires and 386 valid questionnaires.

Table 4.19 shows the basic personal information of 386 samples, covering four aspects: age, gender, education level, and household size. In terms of age distribution, the samples mainly consist of middle-aged individuals. The highest proportion, 43.01%, falls within the 40-49 age group, followed by 34.97% in the 50-59 age group. Regarding gender, the number of male samples significantly exceeds that of females, with males accounting for 63.99% of the total. In terms of education level, samples with a secondary education make up the highest proportion at 44.3%, indicating that the overall education level of the samples is primarily secondary. Finally, concerning household size, families with 3-4 members represent the largest proportion at 51.81%, indicating that most families in the sample are relatively small.

Table 4.19 Personal Information

Variable	Class	Frequency	Percentage
Age	Under 30	26	6.74%
	30-39 Years old	43	11.14%
	Age 40-49	166	43.01%
	50-59 Years old	135	34.97%
	Age 60 and over	16	4.15%
Sex	Male	247	63.99%
	Female	139	36.01%
Educational level	No formal education was received	14	3.63%

Table 4.19 Personal Information (Cont.)

Variable	Class	Frequency	Percentage
The number of families	primary school	33	8.55%
	middle school	171	44.30%
	senior middle school	86	22.28%
	job training	64	16.58%
	College / University	18	4.66%
	1-2 People	17	4.40%
	3-4 People	200	51.81%
	5-6 People	135	34.97%
	6 People and above	34	8.81%

Table 4.20 presents agricultural information from 386 samples, including types of farming, major crops and livestock, farm size, and agricultural experience. In terms of farming types, crop cultivation holds the highest proportion at 54.15%, followed by mixed agriculture at 27.2%. Regarding major crops and livestock, vegetable cultivation is the most common, reaching a proportion of 85.75%, followed by rice and corn. Farm size predominantly falls within the range of 3-5 hectares, accounting for 48.45%. Concerning agricultural experience, farmers with 10–20 years of experience represent the largest share at 42.492%. This information provides foundational data support for subsequent agricultural analysis and research.

Table 4.20 Agricultural Information

Variable	Class	Frequency	Percentage
Breeding type	Crop planting	209	54.15%
	raise livestock	72	18.65%
	mixed farming	105	27.20%
Major crops and livestock	rice	262	67.88%
	wheat	90	23.32%

Table 4.20 Agricultural Information (Cont.)

Variable	Class	Frequency	Percentage
Farm size	corn	229	59.33%
	vegetables	331	85.75%
	fruit	118	30.57%
	fowl	218	56.48%
	cattle	95	24.61%
	hog	237	61.40%
	other	42	10.88%
	Below 1 hectare	16	4.15%
	1-3 hectares	65	16.84%
	3-5 hectares	187	48.45%
Agricultural experience	More than 5 hectares	118	30.57%
	Within 5 years	30	7.77%
	5-10 Years	71	18.39%
	10-20 Years	164	42.49%
	More than 20 years	121	31.35%

Table 4.21 summarizes agricultural insurance information for the 386 samples. All samples participated in agricultural insurance, with participation rates for crop insurance, livestock insurance, and comprehensive insurance at 27.72%, 34.97%, and 37.31%, respectively. This indicates a high level of participation among farmers in various types of agricultural insurance. In terms of insurance duration, policies with a term of 3-5 years are the most common, comprising 37.56%. Additionally, 68.39% of farmers have made claims, indicating the significant role of agricultural insurance in practical application.

Table 4.21 Information on the agricultural insurance policy

Variable	Class	Frequency	Percentage
Whether to attend agricultural insurance	Yes	386	100.00%
	Crop insurance	107	27.72%
Participate in insurance types	Livestock insurance	135	34.97%
	Comprehensive insurance	144	37.31%
Participate in insurance types	Within 1 year	58	15.03%
	1-3 Years	82	21.24%
	3-5 Years	145	37.56%
	More than 5 years	101	26.17%
Whether a claim had been made	Yes	264	68.39%
	Deny	122	31.61%

4.2.1.2 Descriptive analysis of the variables

This study involves four main variables: government policy support, insurance supply capability, farmers' effective demand, and agricultural insurance performance. Table 4.22 presents the means and standard deviations of the variables. The results show that the overall mean of government policy support is 3.535, which is above average. This indicates significant government support for agricultural insurance. Among the four dimensions of government policy support, the mean of regulatory support is the highest (3.693), highlighting the government's notable backing in legislation formulation and implementation regarding agricultural insurance. However, the mean of policy stability is relatively low (3.38), possibly due to frequent policy changes or insufficient stability in execution.

The overall mean of insurance supply capability is 3.557, similar to government policy support, also above average. This suggests that insurance companies possess a certain level of strength and service quality when providing agricultural insurance products. Among the four dimensions of insurance supply capability, the mean of service quality is the highest (3.712), indicating that insurance companies perform relatively well in service. However, the means of product design and premium affordability are slightly lower, suggesting the need for further optimization in product innovation and premium setting.

The overall mean of farmers' effective demand is 3.814, which is the highest among all variables, indicating that the demand for agricultural insurance is very strong among farmers. The effective demand consists of three dimensions, with the mean of risk perception being the highest at 3.865, suggesting that farmers have a deep understanding of agricultural risks. The mean for awareness of agricultural insurance is also relatively high at 3.793, indicating that farmers possess a strong level of knowledge regarding agricultural insurance. Satisfaction also has a relatively high mean of 3.785, showing that farmers are fairly satisfied with the existing agricultural insurance products and services.

The overall mean for agricultural insurance performance is 3.363, placing it at a moderate level. Among the two dimensions of agricultural insurance performance, the mean impact on agricultural economy is slightly higher than the mean for financial protection provided, indicating that agricultural insurance performs relatively well in terms of its influence on the agricultural economy, but improvements are needed in the financial protection aspect.

In summary, from the perspective of mean values, government policy support, insurance supply capability, and farmers' effective demand all fall slightly above average, while agricultural insurance performance remains at a moderate level. This demonstrates that agricultural insurance has received support and recognition from both the government and farmers during its development. However, there is still room for improvement in enhancing insurance supply capabilities and meeting farmers' needs. Additionally, agricultural insurance performance requires further enhancement to better fulfill its protective role in the agricultural economy.

Table 4.22 Descriptive analysis of the variables

Variable	N	Minimum	Maximum	$\bar{X}$	S.D.
Government policy support	386	1	5	3.535	0.882
Government subsidies	386	1	5	3.518	1.132
Regulatory support	386	1	5	3.693	1.043
Policy stability	386	1	5	3.380	1.183
Government propaganda	386	1	5	3.551	1.090
Insurance supply capacity	386	1	5	3.557	0.831
Products design	386	1	5	3.475	1.092
Premium affordability	386	1	5	3.504	1.111
Rationality of claim	386	1	5	3.535	1.171
service level	386	1	5	3.712	0.979
Effective demand from farmers	386	1	5	3.814	0.691
Agricultural insurance awareness	386	1	5	3.793	0.917
Risk perception	386	1	5	3.865	0.855
Degree of satisfaction	386	1	5	3.785	0.928
Agricultural insurance	386	1	5	3.363	1.065

Table 4.22 Descriptive analysis of the variables (Cont.)

Variable	N	Minimum	Maximum	$\bar{X}$	S.D.
performance					
Impact on the agricultural economy	386	1	5	3.428	1.180
Financial security provided	386	1	5	3.298	1.182

4.2.1.3 Normal distribution test

This study uses AMOS 24.0 software and applies structural equation modeling. It employs the maximum likelihood method for parameter estimation to test the research hypotheses proposed earlier. Scholars note that when using the maximum likelihood method for parameter estimation, the questionnaire data should conform to a normal distribution. To verify if the data meets the normal distribution requirement, researchers can examine the kurtosis and skewness coefficients. Theoretically, if the absolute values of the kurtosis and skewness coefficients are both 0, the data conforms to a standard normal distribution. However, in practice, questionnaire data often struggles to achieve this ideal normal distribution state completely. Therefore, it is commonly accepted that when the absolute value of kurtosis is less than 10, and the absolute value of skewness is less than 3, the questionnaire data can be considered to roughly conform to a normal distribution and possess statistical significance. To verify whether the questionnaire data in this study adheres to a normal distribution, we analyzed kurtosis and skewness coefficients from 386 responses. The results, presented in Table 4.23, indicate that this data roughly conforms to a normal distribution, allowing for subsequent structural equation modeling analysis.

Table 4.23 Test of normal distribution

Item	N	Minimum	Maximum	Skewness	Kurtosis
GS1	386	1	5	3.500	1.310
GS2	386	1	5	3.539	1.229
GS3	386	1	5	3.516	1.265
RS1	386	1	5	3.671	1.192
RS2	386	1	5	3.707	1.162
RS3	386	1	5	3.700	1.188
PS1	386	1	5	3.352	1.293
PS2	386	1	5	3.402	1.318
PS3	386	1	5	3.386	1.342
GP1	386	1	5	3.601	1.232
GP2	386	1	5	3.510	1.209
GP3	386	1	5	3.542	1.197
PD1	386	1	5	3.529	1.275
PD2	386	1	5	3.461	1.227
PD3	386	1	5	3.544	1.323
PD4	386	1	5	3.368	1.210
PA1	386	1	5	3.453	1.235
PA2	386	1	5	3.500	1.320
PA3	386	1	5	3.557	1.297
CR1	386	1	5	3.453	1.340
CR2	386	1	5	3.606	1.327
CR3	386	1	5	3.547	1.299
SL1	386	1	5	3.741	1.165
SL2	386	1	5	3.676	1.142
SL3	386	1	5	3.624	1.138
SL4	386	1	5	3.808	1.180
AAI1	386	1	5	3.837	1.080

Table 4.23 Test of normal distribution (Cont.)

Item	N	Minimum	Maximum	Skewness	Kurtosis
AAI2	386	1	5	3.764	1.157
AAI3	386	1	5	3.751	1.156
AAI4	386	1	5	3.819	1.137
PR1	386	1	5	3.928	1.004
PR2	386	1	5	3.876	1.062
PR3	386	1	5	3.793	0.914
SD1	386	1	5	3.764	0.961
SD2	386	1	5	3.782	1.193
SD3	386	1	5	3.808	1.128
IAE1	386	1	5	3.396	1.347
IAE3	386	1	5	3.505	1.333
IAE4	386	1	5	3.443	1.363
IAE5	386	1	5	3.435	1.374
IAE6	386	1	5	3.409	1.371
FP1	386	1	5	3.326	1.342
FP2	386	1	5	3.251	1.351
FP3	386	1	5	3.360	1.400
FP4	386	1	5	3.254	1.328

4.2.2 Reliability analysis

Reliability analysis, also known as coefficient analysis, evaluates the consistency or stability of measurement tools. This study measures the reliability of various scales using three indicators: item-total correlation (CITC value), Cronbach's α after item deletion, and Cronbach's α . Generally, when a scale's Cronbach's α coefficient exceeds 0.7, it indicates good internal consistency. Additionally, in this research, an item should be deleted when both of the following conditions are met: (1) The item-total correlation CITC value of each measurement item is less than 0.5; (2) The

Cronbach's α of the scale, after item deletion, is greater than the Cronbach's α of the respective scale.

4.2.2.1 Reliability analysis of the Government Policy Support Scale

Table 4.24 presents the results of the reliability analysis for the government policy support scale. The Cronbach's α coefficient for this scale is 0.91. The Cronbach's α coefficients for the four sub-scales—government subsidies, regulatory support, policy stability, and government promotion—are 0.872, 0.86, 0.879, and 0.881, respectively. The CITC values of the measurement items and the Cronbach's α values after item deletion meet the necessary requirements. Therefore, the government policy support scale in this study demonstrates good reliability.

Table 4.24 Reliability Analysis of the Government Policy Support Scale

Scale	Dimension	Item	CITC	Cronbach's Alpha if item Deleted	Subscale Cronbach's Alpha	Total Table Cronbach's Alpha
Government policy support	Government subsidies	GS1	0.766	0.809	0.872	0.91
		GS2	0.763	0.812		
		GS3	0.735	0.837		
	Regulatory support	RS1	0.75	0.789	0.86	
		RS2	0.717	0.819		
		RS3	0.736	0.801		
Government policy support	Policy stability	PS1	0.757	0.838	0.879	0.91
		PS2	0.759	0.836		
		PS3	0.785	0.813		
	Government	GP1	0.774	0.829	0.881	

Table 4.24 Reliability Analysis of the Government Policy Support Scale (Cont.)

Scale	Dimension	Item	CITC	Cronbach's Alpha if item Deleted	Subscale Cronbach's Alpha	Total Table Cronbach's Alpha
	propaganda	GP2	0.776	0.827		
		GP3	0.761	0.84		

4.2.2.2 Reliability analysis of the insurance supply and energy force table

Table 4.25 presents the reliability analysis results for the insurance supply capacity scale. The Cronbach's α coefficient for the insurance supply capacity scale is 0.9. The Cronbach's α coefficients for the four subscales: product design, premium affordability, claim rationality, and service level are 0.89, 0.832, 0.863, and 0.868, respectively. The CITC values of the measurement items and the Cronbach's α coefficients after item deletion all meet the requirements. Thus, the insurance supply capacity scale in this study demonstrates good reliability.

Table 4.25 Reliability analysis of the insurance supply and energy force table

Scale	Dimension	Item	CITC	Cronbach's Alpha if item Deleted	Subscale Cronbach's Alpha	Total Table Cronbach's Alpha
Insurance supply capacity	Products design	PD1	0.76	0.853	0.89	0.9
		PD2	0.738	0.862		
		PD3	0.78	0.846		
		PD4	0.741	0.861		

Table 4.25 Reliability analysis of the insurance supply and energy force table (Cont.)

Scale	Dimension	Item	CITC	Cronbach's Alpha if item Deleted	Subscale Cronbach's Alpha	Total Table Cronbach's Alpha
Insurance supply capacity	Premium affordability	PA1	0.717	0.745	0.832	0.9
		PA2	0.685	0.777		
		PA3	0.677	0.784		
	Rationality of claim	CR1	0.753	0.806	0.863	
		CR2	0.744	0.814		
		CR3	0.74	0.818		
	Service level	SL1	0.727	0.84	0.868	
		SL2	0.736	0.836		
		SL3	0.709	0.846		
		SL4	0.746	0.832		

4.2.2.4 Reliability analysis of farmers' effective demand table

Table 4.26 shows the reliability analysis results for the farmers' effective demand scale. The Cronbach's α coefficient for the farmers' effective demand scale is 0.841. The Cronbach's α coefficients for the three subscales: agricultural insurance awareness, risk perception, and satisfaction, are 0.824, 0.822, and 0.799, respectively. The CITC values of the measurement items and the Cronbach's α coefficients after item deletion all meet the requirements. Therefore, the farmers' effective demand scale in this study exhibits good reliability.

Table 4.26 Reliability analysis of farmers' effective demand table

Scale	Dimension	Item	CITC	Cronbach's Alpha if item Deleted	Subscale Cronbach's Alpha	Total Table Cronbach's Alpha
Effective demand from farmers	Agricultural insurance awareness	AAI1	0.617	0.812	0.824	0.841
		AAI2	0.683	0.783		
		AAI3	0.678	0.785		
		AAI4	0.682	0.783		
Effective demand from farmers	Risk perception	PR1	0.673	0.78	0.822	0.841
		PR2	0.708	0.747		
		PR3	0.692	0.766		
		SD1	0.666	0.731		
Effective demand from farmers	Degree of satisfaction	SD2	0.649	0.744	0.799	
		SD3	0.659	0.726		

4.2.2.5 Reliability analysis of agricultural Insurance performance scale

Table 4.27 displays the reliability analysis results for the agricultural insurance performance scale. The Cronbach's α coefficient for the agricultural insurance performance scale is 0.932. The Cronbach's α coefficients for the two subscales: agricultural insurance awareness, risk perception, and satisfaction, are 0.935 and 0.895, respectively. The CITC values of the measurement items and the Cronbach's α coefficients after item deletion all meet the requirements. Accordingly, the agricultural insurance performance scale in this study shows good reliability.

Table 4.27 Reliability Analysis of the Agricultural Insurance Performance Scale

Scale	Dimension	Item	CITC	Cronbach's Alpha if item Deleted	Subscale Cronbach's Alpha	Total Table Cronbach's Alpha
Agricultural insurance performance	Impact on the agricultural economy	IAE1	0.825	0.917	0.935	0.932
		IAE2	0.801	0.92		
		IAE3	0.77	0.924		
		IAE4	0.791	0.921		
		IAE5	0.809	0.919		
		IAE6	0.808	0.919		
Agricultural insurance performance	Financial security provided	FP1	0.762	0.864	0.895	0.932
		FP2	0.744	0.871		
		FP3	0.782	0.857		
		FP4	0.771	0.861		

4.2.3 analysis of validity

Validity analysis examines the degree to which a measurement scale accurately captures the intended content. The higher the degree of alignment between the scale and the content it measures, the greater the validity. This study utilized SPSS 26.0 and Amos 24.0 software to perform exploratory factor analysis and structural equation modeling to assess the validity of four scales: organizational memory, knowledge coupling, policy support, and breakthrough technological innovation.

4.2.3.1 Validity analysis of the government policy support scale

1) Exploratory factor analysis of government policy support

Before conducting the exploratory factor analysis, it is essential to perform KMO and Bartlett's test of sphericity to determine the scale's suitability for the analysis. Generally, a KMO value greater than 0.6 and a Bartlett's test significance level below 0.05 indicate that the scale is appropriate for exploratory factor analysis.

Table 4.28 presents the KMO and Bartlett's test results for the government policy support scale. The results indicate that the KMO value for this scale is 0.889, exceeding 0.6, and the Bartlett's test yields a significant result (Sig = 0.000), suggesting that the government policy support scale is suitable for exploratory factor analysis.

Table 4.28 Government Policy Support Scale KMO and Bartlett spherical tests

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.889
Bartlett's Test of Sphericity	Approx. Chi-Square	2853.179
	df	66
	Sig.	0.00

Table 4.29 shows the total variance explained by factor extraction of all measurement items for the government policy support scale using principal components analysis. The results reveal that four factors, with eigenvalues greater than 1, were extracted. The cumulative variance explanation of these four factors is 79.996%, which is greater than 60%, indicating that the extracted four factors effectively explain the original measurement items.

Table 4.29 Interpretation of the total variance

No.	Initial eigenvalue			Sum of square of loading			variance explained		
	Total	variance %	cumulative %	Total	variance %	cumulative %	Total	variance %	cumulative %
1	6.046	50.385	50.385	6.046	50.385	50.385	2.456	20.468	20.468
2	1.415	11.789	62.174	1.415	11.789	62.174	2.42	20.17	40.639
3	1.102	9.187	71.361	1.102	9.187	71.361	2.389	19.912	60.551
4	1.036	8.635	79.996	1.036	8.635	79.996	2.333	19.445	79.996
5	0.412	3.436	83.432						
6	0.361	3.004	86.436						
7	0.33	2.747	89.184						
8	0.287	2.392	91.576						
9	0.285	2.374	93.95						
10	0.264	2.2	96.151						
11	0.242	2.021	98.171						
12	0.219	1.829	100						

Table 4.30 presents the rotated component matrix of the government policy support scale. The results indicate that the four extracted factors are government subsidies, regulatory support, policy stability, and government propaganda. The factor loadings of all measurement items for these four factors exceed 0.5, and every item aligns with its corresponding factor. There is no cross-loading, which suggests that the government policy support scale in this study comprises four constructs. These constructs are government subsidies, regulatory support, policy stability, and government publicity, aligning with the anticipated set of constructs. Thus, the scale exhibits good validity.

Table 4.30 Post-rotation composition matrix

Name	Item	Factor loading coefficients			
		IF 1	IF2	IF 3	IF4
government subsidies	GS1		0.818		
	GS2		0.836		
	GS3		0.807		
Regulatory support	RS1				0.797
	RS2				0.806
	RS3				0.807
Policy stability	PS1	0.847			
	PS2	0.831			
	PS3	0.862			
Government propaganda	GP1			0.821	
	GP2			0.808	
	GP3			0.831	

2) Confirmatory factor analysis of government policy support

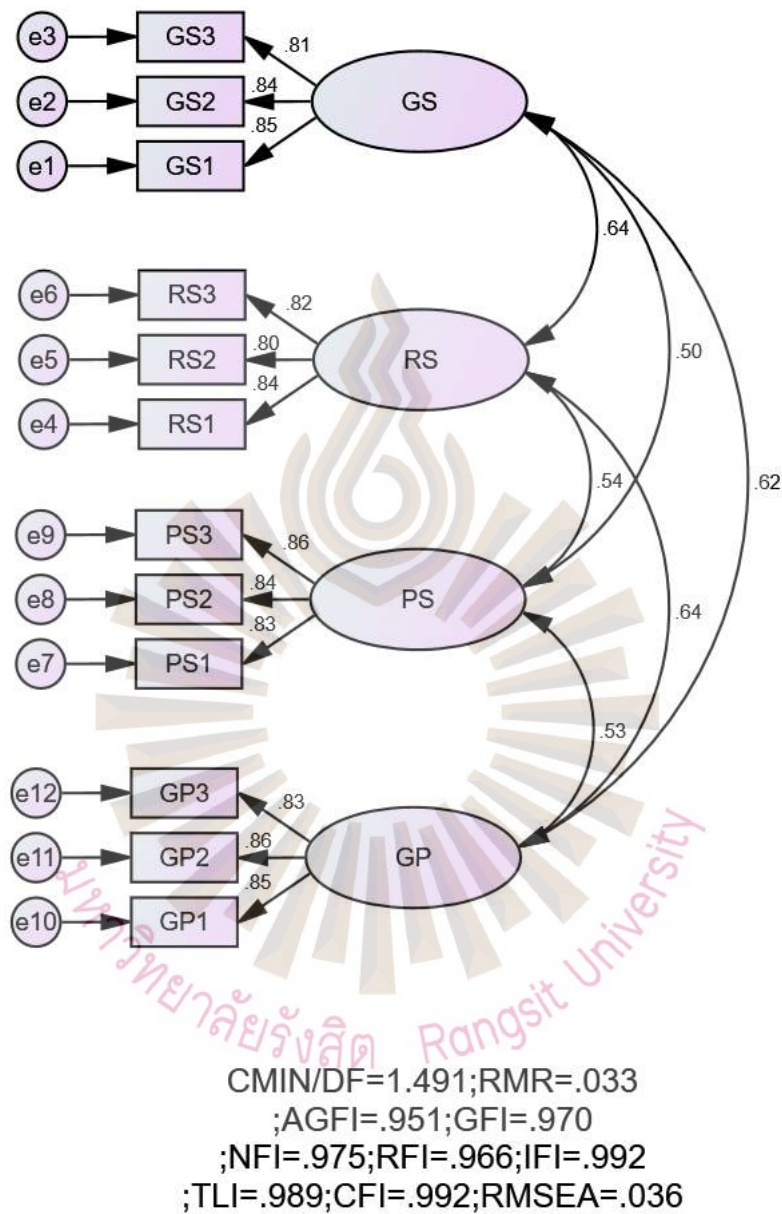


Figure 4.1 The confirmatory factor model of government policy support

Note: GS= government subsidy; RS= regulatory support; PS= policy stability; GP= government publicity

Table 4.31, Table 4.32 and Figure 4.1 presents the goodness-of-fit test results for the confirmatory factor model of government policy support. The results indicate:

CMIN/DF=1.491, RMR=0.033, RMSEA=0.036, GFI=0.97, AGFI=0.951, NFI=0.975, RFI=0.966, IFI=0.992, TLI=0.989, and CFI=0.992. These fit indices fall within reasonable ranges, suggesting that the confirmatory factor model established for government policy support in this study exhibits good overall fit, allowing for further analysis.

Table 4.31 The suitability test criteria

Goodness-of-Fit Index	Standard Operating Procedure
CMIN/DF	<3
RMR	<0.08
RMSEA	<0.08
GFI	>0.9
AGFI	>0.9
NFI	>0.9
RFI	>0.9
IFI	>0.9
TLI	>0.9
CFI	>0.9

Table 4.32 Validation factor model fit for government policy support

Goodness-of-Fit Index	Actual value	Result
CMIN/DF	1.491	outstanding
RMR	0.033	outstanding
RMSEA	0.036	outstanding
GFI	0.97	outstanding
AGFI	0.951	outstanding
NFI	0.975	outstanding
RFI	0.966	outstanding
IFI	0.992	outstanding
TLI	0.989	outstanding

Table 4.32 Validation factor model fit for government policy support. (Cont.)

Goodness-of-Fit Index	Actual value	Result
CFI	0.992	outstanding

Convergent validity reflects the degree to which a construct correlates with various observed variables. According to Fornell (Fornell,1981), convergent validity is primarily measured through factor loading, composite reliability (CR), and average variance extracted (AVE). Specifically, factor loading should exceed 0.6, composite reliability should exceed 0.7, and average variance extracted should exceed 0.5. When these criteria are met, one can assert that the construct possesses good convergent validity. Table 4.33 presents the results of the convergent validity test for the government policy support scale. The table shows that the standardized factor loadings for the four constructs—government subsidies, regulatory support, policy stability, and government publicity—exceed 0.7. The AVE values for these constructs also exceed 0.5, while the CR values surpass 0.7, indicating that the government policy support scale demonstrates good convergent validity across the four constructs.

Table 4.33 Convergent validity

Construct	Item	Unstan dardize d factor loading	Standar dized Estimate s	E.	C.R.	P	CR	AVE
Governme nt subsidies	GS1	1	0.852				0.873	0.696
	GS2	0.926	0.84	0.049	18.851	***		
	GS3	0.919	0.81	0.051	18.094	***		
Regulatory support	RS1	1	0.844				0.860	0.672
	RS2	0.918	0.795	0.053	17.179	***		
	RS3	0.966	0.819	0.054	17.751	***		

Table 4.33 Convergent validity (Cont.)

Construct	Item	Unstan dardize d factor loading	Standar dized Estimate s	E.	C.R.	P	CR	AVE
Policy stability	PS1	1	0.827				0.880	0.709
	PS2	1.031	0.836	0.056	18.268	***		
	PS3	1.083	0.863	0.058	18.809	***		
Government	GP1	1	0.849				0.881	0.713
	GP2	0.991	0.858	0.05	19.699	***		
propaganda	GP3	0.945	0.825	0.05	18.825	***		

Discriminant validity measures the extent to which a latent variable differs from other latent variables. Following the recommendations of Fornell and Larcker (Fornell, & Larcker, 1981), one can assess discriminant validity by comparing the coefficients of correlation between constructs with the square root of each construct's average variance extracted (AVE). If the square root of each construct's AVE exceeds the correlation coefficients between the construct and all other constructs, then one can conclude that the constructs have good discriminant validity. As shown in Table 4.34, the square root values of the AVE (bolded numbers on the diagonal) for each construct are greater than the correlation coefficients between pairs of constructs, which suggests that the government policy support scale shows satisfactory discriminant validity among the four constructs: government subsidies, regulatory support, policy stability, and government publicity.

Table 4.34 Differentiating validity

Construct	Government subsidies	Regulatory support	Policy stability	Government propaganda
Government subsidies	0.834			
Regulatory support	0.645	0.820		
Policy stability	0.499	0.544	0.842	
Government propaganda	0.622	0.642	0.532	0.844

4.2.3.2 Validity analysis of insurance supply power table

1) Exploratory factor analysis of insurance supply capacity

Table 4.35 presents the KMO and Bartlett's test results for the insurance supply capacity scale. The results indicate that the KMO value for the insurance supply capacity scale is 0.89, which exceeds 0.6, and the Bartlett's test of sphericity is significant (Sig=0.000). This suggests that the insurance supply capacity scale is suitable for exploratory factor analysis.

Table 4.35 KMO and Bartlett spherical test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.89
Approx. Chi-Square		2972.515
Bartlett's Test of Sphericity	df	91
	Sig.	0.000

Table 4.36 presents the total variance explanation table obtained from factor extraction of all measurement items in the insurance supply capacity scale using principal component analysis. The results show that four factors with characteristic root values greater than 1 were extracted. The cumulative variance explanation rate of the four factors is 75.03%, exceeding 60%. This indicates that the four extracted factors provide a good explanatory power for the original measurement items.

Table 4.36 Interpretation of the total variance

No.	Initial eigenvalue			Sum of square of loading			variance explained		
	Total	variance %	cumulative %	Total	variance %	cumulative %	Total	variance %	cumulative %
1	6.119	43.707	43.707	6.119	43.707	43.707	3.013	21.523	21.523
2	1.705	12.181	55.889	1.705	12.181	55.889	2.876	20.544	42.067
3	1.435	10.247	66.136	1.435	10.247	66.136	2.346	16.754	58.821
4	1.245	8.895	75.03	1.245	8.895	75.03	2.269	16.21	75.03
5	0.512	3.656	78.686						
6	0.433	3.093	81.779						
7	0.396	2.83	84.609						
8	0.384	2.742	87.351						
9	0.338	2.411	89.762						
10	0.33	2.356	92.118						
11	0.309	2.205	94.323						
12	0.295	2.111	96.434						
13	0.263	1.879	98.312						
14	0.236	1.688	100						

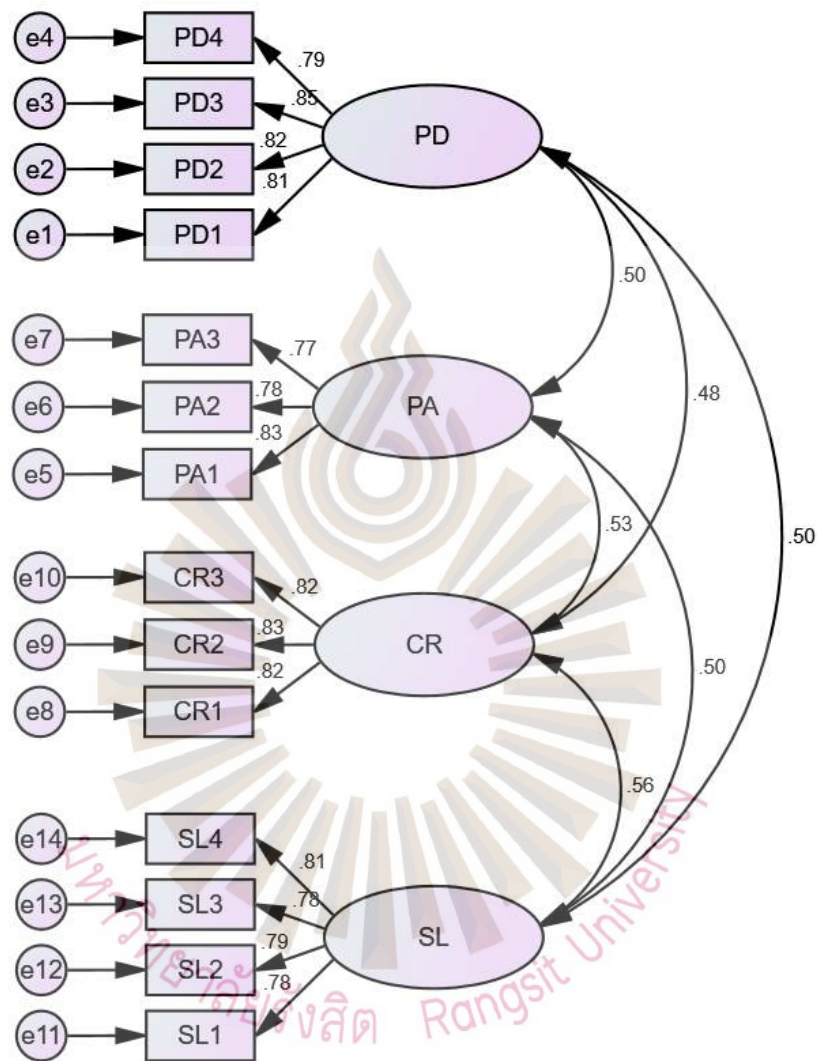
Table 4.37 displays the component matrix after the rotation of the insurance supply capacity scale. The results reveal that the four extracted factors are product design, premium bearing capacity, claims rationality, and service level. The factor loadings of all measurement items under the four factors are greater than 0.5. Each item falls under its corresponding factor without any cross-loadings. This indicates that the

insurance supply capacity scale in this study consists of four constructs: product design, premium bearing capacity, claims rationality, and service level, aligning with the anticipated construct settings, which confirms the scale's good validity.

Table 4.37 Composition matrix after rotation

Name	Item	Factor loading coefficients			
		IF 1	IF2	IF 3	IF4
products design	PD1	0.828			
	PD2	0.808			
	PD3	0.842			
	PD4	0.814			
Premium affordability	PA1				0.841
	PA2				0.795
	PA3				0.801
Rationality of claim	CR1			0.832	
	CR2			0.826	
	CR3			0.818	
service level	SL1		0.786		
	SL2		0.828		
	SL3		0.778		
	SL4		0.799		

2) Confirmatory factor analysis of insurance supply capacity



CMIN/DF=1.411;RMR=.037
 ;AGFI=.948;GFI=.965
 ;NFI=.967;RFI=.957;IFI=.990
 ;TLI=.987;CFI=.990;RMSEA=.033

Figure 4.2 The confirmatory factor model of insurance supply capacity

Note: PD= product design; PA= premium affordability; CR= claim rationality; SL= service level

Figure 4.2 and Table 4.38 shows the results of the goodness-of-fit test for the confirmatory factor model of insurance supply capacity. The results indicate that $CMIN/DF=1.411$, $RMR=0.037$, $RMSEA=0.033$, $GFI=0.965$, $AGFI=0.948$, $NFI=0.967$, $RFI=0.957$, $IFI=0.99$, $TLI=0.987$, $CFI=0.99$. All fit indices fall within a reasonable range, demonstrating that the confirmatory factor model established in this study exhibits good overall fit, allowing for further analysis.

Table 4.38 Model adaptation of insurance supply capacity

Goodness-of-Fit Index	Actual value	Result
CMIN/DF	1.411	outstanding
RMR	0.037	outstanding
RMSEA	0.033	outstanding
GFI	0.965	outstanding
AGFI	0.948	outstanding
NFI	0.967	outstanding
RFI	0.957	outstanding
IFI	0.99	outstanding
TLI	0.987	outstanding
CFI	0.99	outstanding

Table 4.39 presents the results of the convergent validity test for the insurance supply capacity scale. The table shows that the standardized factor loadings of the four constructs—product design, premium bearing capacity, claims rationality, and service level—are all above 0.7. The AVE values for the constructs exceed 0.5, and the CR values are all above 0.7. This indicates that the four constructs in this study—product design, premium bearing capacity, claims rationality, and service level—exhibit good convergent validity.

Table 4.39 Convergent validity

Construct	Item	Unstandardized factor loading	Standardized Estimates	E.	C.R.	P	CR	AVE
Products design	PD1	1	0.812					
	PD2	0.969	0.818	0.055	17.727	***	0.890	0.670
	PD3	1.086	0.85	0.058	18.58	***		
	PD4	0.927	0.793	0.054	17.049	***		
Premium affordability	PA1	1	0.827					
	PA2	1.002	0.776	0.066	15.165	***	0.834	0.627
	PA3	0.978	0.771	0.065	15.089	***		
Reasonability of claim	CR1	1	0.824					
	CR2	0.992	0.826	0.057	17.256	***	0.863	0.677
	CR3	0.963	0.819	0.056	17.129	***		
Service level	SL1	1	0.782					
	SL2	0.988	0.787	0.063	15.707	***	0.868	0.623
	SL3	0.974	0.779	0.063	15.528	***		
	SL4	1.047	0.808	0.065	16.136	***		

Table 4.40 presents the results of the discriminative validity test for the insurance supply capacity scale. The average variance extracted (AVE) square roots of the four constructs: product design, premium affordability, claim reasonableness, and service level (i.e., the bold values along the diagonal of the table) exceed the correlation coefficients between each pair of constructs. This finding indicates that the four constructs of insurance supply capacity—product design, premium affordability, claim reasonableness, and service level—exhibit good discriminative validity in this study.

Table 4.40 Differentiating validity

Construct	Products design	Premium affordability	Rationality of claim	Service level
Products design	0.819			
Premium affordability	0.503	0.792		
Rationality of claim	0.479	0.527	0.823	
Service level	0.496	0.499	0.556	0.789

4.2.3.3 Valvalidity analysis of effective demand

1) Exploratory factor analysis of farmers' effective needs

Table 4.41 displays the KMO measure and Bartlett's test of sphericity results for the farmer effective demand scale. The results show that the KMO value for the farmer effective demand scale is 0.832, which exceeds 0.6. Furthermore, the Bartlett's test of sphericity yields significant results (Sig = 0.000), indicating that the farmer effective demand scale is suitable for exploratory factor analysis.

Table 4.41 KMO and Bartlett spherical test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.832
Bartlett's Test of Sphericity	Approx. Chi-Square	1512.9
	df	45
	Sig.	0.000

Table 4.42 provides the total variance explained for the farmer effective demand scale based on principal component analysis applied to all measurement items. The results reveal that three factors with eigenvalues greater than 1 have been extracted. The cumulative variance explanation rate for these three factors is 70.175%, which is greater than the 60% threshold, demonstrating that the extracted factors have good explanatory power for the original measurement items.

Table 4.42 Interpretation of the total variance

No.	Initial eigenvalue			Sum of square of loading			variance explained		
	Total	variance %	cumulative %	Total	variance %	cumulative %	Total	variance %	cumulative %
1	4.14	41.398	41.398	4.14	41.398	41.398	2.619	26.192	26.192
2	1.595	15.951	57.35	1.595	15.951	57.35	2.232	22.316	48.509
3	1.283	12.825	70.175	1.283	12.825	70.175	2.167	21.666	70.175
4	0.544	5.435	75.61						
5	0.504	5.044	80.654						
6	0.473	4.731	85.385						
7	0.418	4.184	89.57						
8	0.39	3.896	93.466						
9	0.367	3.67	97.136						
10	0.286	2.864	100						

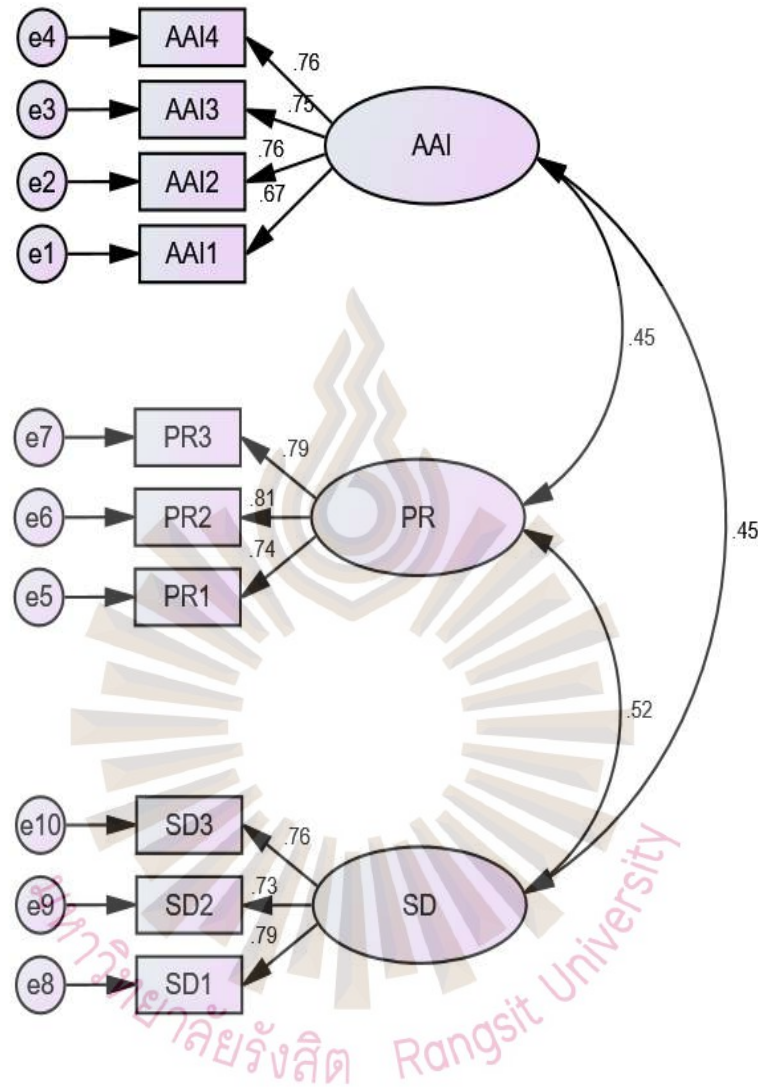
Table 4.43 presents the component matrix after rotation for the farmer effective demand scale. The results indicate that the three extracted factors are agricultural insurance awareness, risk perception, and satisfaction. The factor loadings for all measurement items across the three factors exceed 0.5, with each item belonging to its corresponding factor and no instances of cross-loadings. This finding suggests that the farmer effective demand scale comprises three constructs—agricultural insurance awareness, risk perception, and satisfaction—consistent with the expected construct configuration, indicating that the scale possesses good validity.

Table 4.43 Composition matrix after rotation

Name	Item	Factor loading coefficients		
		IF 1	IF2	IF 3
Agricultural insurance awareness	AAI1	0.753		
	AAI2	0.813		
	AAI3	0.805		
	AAI4	0.77		
Risk perception	PR1		0.815	
	PR2		0.833	
	PR3		0.835	
degree of satisfaction	SD1			0.805
	SD2			0.816
	SD3			0.826



2) Confirmatory factor analysis of farmers' effective needs



CMIN/DF=1.578;RMR=.030
 ;AGFI=.957;GFI=.975
 ;NFI=.967;RFI=.954;IFI=.988
 ;TLI=.982;CFI=.988;RMSEA=.039

Figure 4.3 The confirmatory factor model of farmers' effective demand

Note: AAI = agricultural insurance awareness; PR= risk perception; SD= satisfaction

Table 4.44 presents the goodness-of-fit test results for the confirmatory factor model of farmers' effective demand. The results indicate: CMIN/DF=1.578, RMR=0.03, RMSEA=0.039, GFI=0.975, AGFI=0.957, NFI=0.967, RFI=0.954, IFI=0.988, TLI=0.982, and CFI=0.988. All fit indices fall within reasonable ranges, which suggests that the confirmatory factor model established for insurance supply capacity shows good overall fit. Thus, the analysis can proceed to the next phase.

Table 4.44 Confirmatory factor model fit for farmers' effective needs

Goodness-of-Fit Index	Actual value	Result
CMIN/DF	1.578	outstanding
RMR	0.03	outstanding
RMSEA	0.039	outstanding
GFI	0.975	outstanding
AGFI	0.957	outstanding
NFI	0.967	outstanding
RFI	0.954	outstanding
IFI	0.988	outstanding
TLI	0.982	outstanding
CFI	0.988	outstanding

Table 4.45 shows the convergent validity testing results for the farmers' effective demand scale. From the table, it is evident that the standardized factor loadings for the three constructs—awareness of agricultural insurance, risk perception, and satisfaction—are all above 0.7. Furthermore, the AVE values for the constructs exceed 0.5, and the CR values all surpass 0.7. This indicates that the convergent validity for the three constructs—awareness of agricultural insurance, risk perception, and satisfaction—within the farmers' effective demand scale is satisfactory.

Table 4.45 Convergent validity

Construct	Item	Unstand ardized factor loading	Stand ardize d Estim ates	E.	C.R.	P	CR	AVE
Agricultural insurance awareness	AAI1	1	0.668					
	AAI2	1.222	0.762	0.101	12.136	***	0.825	0.541
	AAI3	1.2	0.749	0.1	12.002	***		
	AAI4	1.196	0.759	0.099	12.108	***		
Risk perception	PR1	1	0.744					
	PR2	1.151	0.81	0.083	13.956	***	0.825	0.612
	PR3	0.967	0.791	0.07	13.804	***		
degree of satisfaction	SD1	1	0.787					
	SD2	1.155	0.732	0.089	12.921	***	0.804	0.578
	SD3	1.135	0.761	0.086	13.222	***		

Table 4.46 displays the discriminant validity testing results for the farmers' effective demand scale. The square roots of the average variance extracted (AVE) for the three constructs—awareness of agricultural insurance, risk perception, and satisfaction—are all greater than the correlation coefficients among the constructs. This finding demonstrates that the three constructs—awareness of agricultural insurance, risk perception, and satisfaction—exhibit strong discriminant validity in this study.

Table 4.46 Differentiating validity

Construct	Agricultural insurance awareness	Risk perception	Degree of satisfaction
Agricultural insurance awareness	0.736		
Risk perception	0.447	0.782	
Degree of satisfaction	0.453	0.517	0.760

4.2.3.4 Validity analysis of agricultural insurance performance scale

1) Exploratory Factor analysis of agricultural insurance performance

Table 4.47 presents the KMO and Bartlett's test results for the agricultural insurance performance scale. The results indicate that the KMO value for the agricultural insurance performance scale is 0.939, which is greater than 0.6, and the results of Bartlett's test are significant (Sig=0.000). This suggests that the agricultural insurance performance scale is suitable for exploratory factor analysis.

Table 4.47 Agricultural Insurance Performance Scale KMO and Bartlett spherical tests

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.939
Bartlett's Test of Sphericity	Approx. Chi-Square	2877.994
	df	45
	Sig.	0.000

Table 4.48 presents the total variance explained by the factor extraction of all measurement items in the agricultural insurance performance scale using principal component analysis. The results indicate that two factors were extracted, both with eigenvalues greater than 1. The cumulative variance explanation rate of these two factors is 75.784%, exceeding 60%, which suggests that these two factors have a good explanatory power over the original measurement items.

Table 4.48 Interpretation of the total variance

No.	Initial eigenvalue			Sum of square of loading			variance explained		
	Tota l	varia nce %	cumula tive %	Tota l	varia nce %	cumula tive %	Tota l	varia nce %	cumula tive %
1	6.234	62.34	62.34	6.234	62.34	62.34	4.362	43.62	43.62
2	1.344	13.444	75.784	1.344	13.444	75.784	3.216	32.164	75.784
3	0.372	3.716	79.5						
4	0.347	3.473	82.973						
5	0.337	3.373	86.346						
6	0.317	3.175	89.521						
7	0.303	3.029	92.549						
8	0.279	2.786	95.336						
9	0.264	2.64	97.975						
10	0.202	2.025	100						

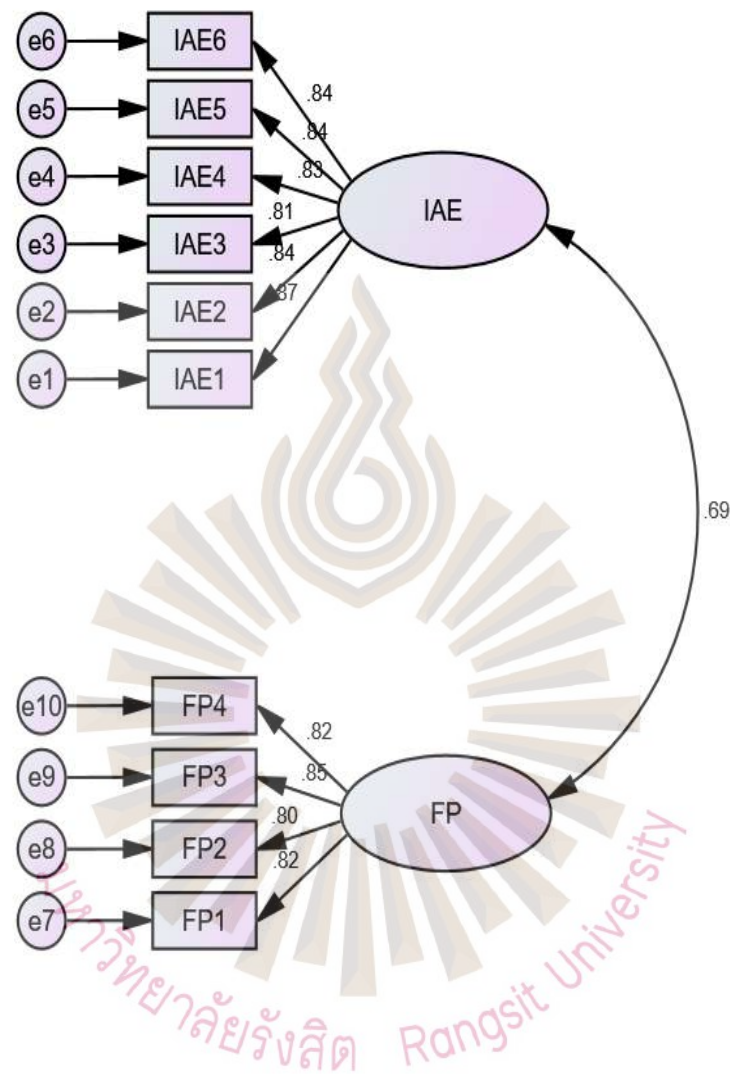
Table 4.49 displays the component matrix after rotation for the agricultural insurance performance scale. The results show that the two extracted factors are the impact on agricultural economics and the financial protection provided. The factor loadings for all measurement items of these two factors are greater than 0.5, and each item corresponds to its respective factor without any cross-loadings. This indicates that the agricultural insurance performance scale in this study consists of two constructs:

the impact on agricultural economics and the financial protection provided, which aligns with the expected construct settings, confirming the scale's validity.

Table 4.49 Post-rotation composition matrix

Name	Item	Factor loading coefficients	
		IF 1	IF2
Impact on the agricultural economy	IAE1	0.834	
	IAE2	0.842	
	IAE3	0.774	
	IAE4	0.811	
	IAE5	0.819	
	IAE6	0.831	
Financial security provided	FP1		0.818
	FP2		0.826
	FP3		0.819
	FP4		0.825

2) Confirmatory factor analysis of agricultural insurance performance



CMIN/DF=1.194;RMR=.034
 ;AGFI=.968;GFI=.980
 ;NFI=.986;RFI=.982;IFI=.998
 ;TLI=.997;CFI=.998;RMSEA=.022

Figure 4.4 Validation factor model of agricultural insurance performance

Note: IAE = impact on agricultural economy; FP= financial security provided

Table 4.50 contains the fit test results for the confirmatory factor model of agricultural insurance performance. The results indicate: CMIN/DF=1.194, RMR=0.034, RMSEA=0.022, GFI=0.98, AGFI=0.968, NFI=0.986, RFI=0.982, IFI=0.998, TLI=0.997, CFI=0.998. All fit indices are within acceptable ranges, confirming that the confirmatory factor model of agricultural insurance performance established in this study has a good overall fit, allowing for further analysis.

Table 4.50 Adaptability of the validation factor model for agricultural insurance performance

Goodness-of-Fit Index	Actual value	Result
CMIN/DF	1.194	outstanding
RMR	0.034	outstanding
RMSEA	0.022	outstanding
GFI	0.98	outstanding
AGFI	0.968	outstanding
NFI	0.986	outstanding
RFI	0.982	outstanding
IFI	0.998	outstanding
TLI	0.997	outstanding
CFI	0.998	outstanding

Table 4.51 presents the results of the convergent validity test for the agricultural insurance performance scale. As shown, the standardized factor loadings of the two constructs, the impact on agricultural economics and the financial protection provided, are all above 0.7. The AVE values for the constructs are greater than 0.5, and the CR values are all above 0.7, demonstrating that the two constructs of the agricultural insurance performance scale in this study exhibit good convergent validity.

Table 4.51 Convergent validity

Construct	Item	Unstandardized factor loading	Standardized Estimate	E.	C.R.	P	CR	AVE
Impact on the agricultural economy	IAE1	1	0.874					
	IAE2	0.964	0.835	0.044	21.7	***		
	IAE3	0.919	0.812	0.045	20.601	***	0.935	0.707
	IAE4	0.965	0.833	0.045	21.593	***		
	IAE5	0.985	0.844	0.045	22.118	***		
	IAE6	0.982	0.844	0.044	22.103	***		
Financial security provided	FP1	1	0.821					
	FP2	0.983	0.801	0.056	17.701	***	0.895	0.680
	FP3	1.086	0.854	0.056	19.263	***		
	FP4	0.991	0.821	0.054	18.304	***		

Table 4.52 presents the discriminant validity test results for the agricultural insurance performance scale. Both constructs within the agricultural insurance performance scale significantly impact the agricultural economy. The square root of the average variance extracted (AVE) values, indicated by the bolded numbers on the table's diagonal, exceed the correlation coefficients between the constructs. This finding suggests that the two constructs of the agricultural insurance performance scale have good discriminant validity concerning their effects on the agricultural economy and the financial security they provide.

Table 4.52 Differentiating validity

Construct	Impact on the agricultural economy	Financial security provided
Impact on the agricultural economy	0.841	
Financial security provided	0.688	0.824

4.2.4 Correlation Analysis

Table 4.53 shows the correlation coefficients among various variables. The table reveals a significant positive correlation between government policy support and agricultural insurance performance ($r=0.62$, $p<0.01$), providing initial support for research hypothesis H1. Additionally, it indicates a significant positive correlation between government policy support and insurance supply capability ($r=0.453$, $p<0.01$), supporting research hypothesis H2. There is also a significant positive correlation between government policy support and farmers' effective demand ($r=0.56$, $p<0.01$), indicating initial support for research hypothesis H3. Furthermore, insurance supply capability shows a significant positive correlation with farmers' effective demand ($r=0.512$, $p<0.01$), supporting research hypothesis H4. Similarly, there is a notable positive relationship between insurance supply capability and agricultural insurance performance ($r=0.567$, $p<0.01$), lending support to hypothesis H5. Lastly, farmers' effective demand significantly correlates with agricultural insurance performance ($r=0.591$, $p<0.01$), providing support for hypothesis H6.

Table 4.53 Results of the correlation analysis

Variable	Government policy support	Insurance supply capacity	Effective demand from farmers	Agricultural insurance performance
Government policy support	1			
Insurance supply capacity	0.453**	1		
Effective demand from farmers	0.560**	0.512**	1	
Agricultural insurance performance	0.620**	0.567**	0.591**	1

Note: * indicates $p < 0.05$; ** indicates $p < 0.01$; *** indicates $p < 0.001$.

4.2.5 Structural equation model analysis

4.2.5.1 Structural equation model construction and fit degree test

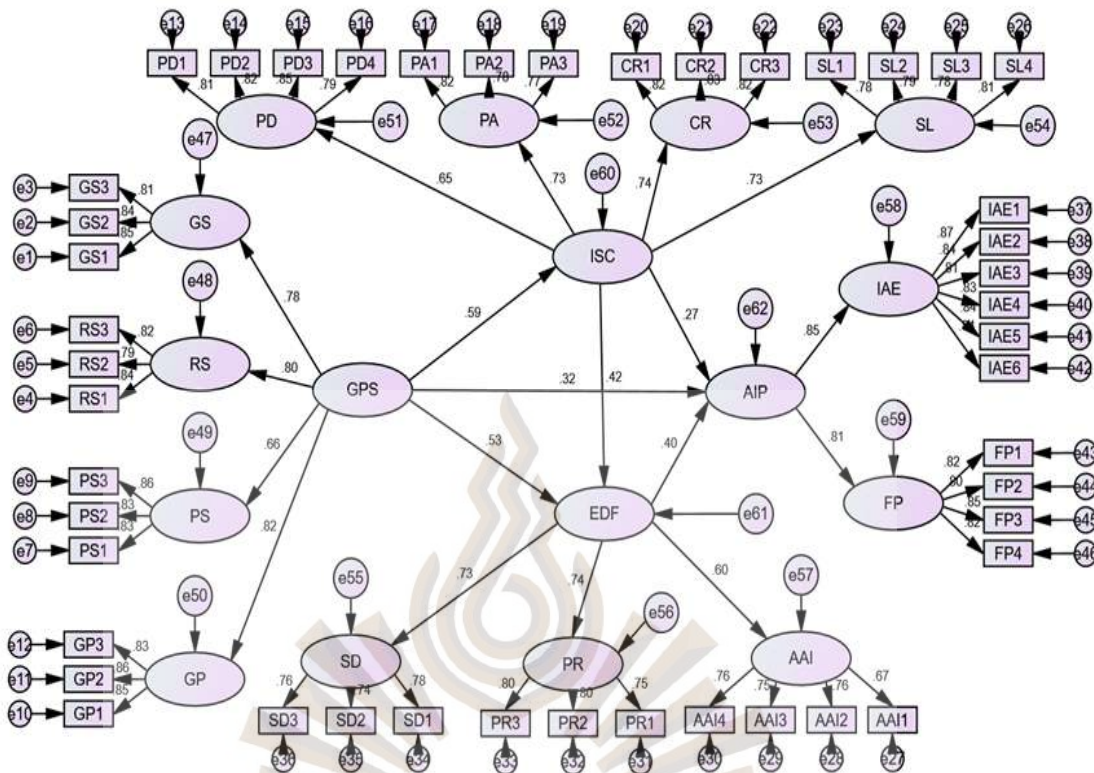


Figure 4.5 The structural equation model

Note: GS= government subsidy; RS= regulatory support; PS= policy stability; GP= government publicity; PD= product design; PA= premium affordability; CR= claim rationality; SL= service level; AAI = agricultural insurance awareness; PR= risk perception; SD= satisfaction; IAE = impact on agricultural economy; FP= financial guarantee provided by insurance; GPS= government policy support; ISC = insurance supply capacity; EDF = farmer effective demand; AIP = agricultural insurance performance.

This study employs AMOS 24.0 software to test the research hypotheses proposed earlier using structural equation modeling. Figure 4.5 illustrates the structural equation model established in this study, where government policy support, insurance supply capability, farmers' effective demand, and agricultural insurance performance serve as second-order latent variables. Meanwhile, first-order latent variables include

government subsidies, regulatory support, policy stability, government promotion, product design, premium affordability, claim rationality, service quality, agricultural insurance awareness, risk perception, satisfaction, impact on the agricultural economy, and financial security provided. First, we examine whether the fit indices of the established structural equation model meet the required standards.

Table 4.54 presents the results of the structural equation model fit test. From the table, we see that CMIN/DF=1.112, RMR=0.053, and RMSEA=0.017. GFI=0.895, AGFI=0.883, NFI=0.908, RFI=0.902, IFI=0.99, TLI=0.989, and CFI=0.99. All fit indices reach acceptable levels. Therefore, the structural equation model constructed in this paper fits well, allowing for hypothesis testing.

Table 4.54 Adaptability of the model of the structural equation

Goodness-of-Fit Index	Actual value	Result
CMIN/DF	1.112	outstanding
RMR	0.053	outstanding
RMSEA	0.017	outstanding
GFI	0.895	outstanding
AGFI	0.883	outstanding
NFI	0.908	outstanding
RFI	0.902	outstanding
IFI	0.99	outstanding
TLI	0.989	outstanding
CFI	0.99	outstanding

4.2.5.3 Path coefficient analysis of the structural equation model

Table 4.55 outlines the path coefficients of the structural equation model. The results show:

1) The standardized path coefficient for government policy support on agricultural insurance performance is 0.317, $p < 0.01$, indicating that government policy support significantly positively impacts agricultural insurance performance, thus supporting research hypothesis H1, it shows that the stronger the government's policy support, the higher the agricultural insurance performance;

2) The standardized path coefficient for government policy support on insurance supply capability is 0.592, $p < 0.001$, indicating that government policy support significantly positively affects insurance supply capability, thus supporting research hypothesis H2, it shows that the stronger the government's policy support, the stronger the supply capacity of agricultural insurance companies;

3) The standardized path coefficient for government policy support on farmers' effective demand is 0.531, $p < 0.001$, indicating that government policy support significantly positively influences farmers' effective demand, thus supporting research hypothesis H3, it shows that the stronger the government's policy support, the stronger the farmers' demand for agricultural insurance;

4) The standardized path coefficient for insurance supply capability on farmers' effective demand is 0.417, $p < 0.001$, indicating that insurance supply capability significantly positively affects farmers' effective demand, thus supporting research hypothesis H4, it shows that the stronger the supply capacity of agricultural insurance companies, the stronger the demand of farmers for agricultural insurance;

5) The standardized path coefficient for insurance supply capability on agricultural insurance performance is 0.267, $p < 0.01$, indicating that insurance supply capability significantly positively influences agricultural insurance performance, thus

supporting research hypothesis H5, it shows that the stronger the supply capacity of agricultural insurance companies, the higher the performance of agricultural insurance;

6) The standardized path coefficient for farmers' effective demand on agricultural insurance performance is 0.395, $p < 0.01$, indicating that farmers' effective demand significantly positively impacts agricultural insurance performance, thus supporting research hypothesis H6, it shows that the higher the effective demand of farmers for agricultural insurance, the higher the performance of agricultural insurance.

Table 4.55 Results of the pathway coefficient analysis of the structural equation model

Trails	Unstandardiz ed factor loading	Standardiz ed Estimates	S.E.	C.R.	P
Government policy support → Agricultural insurance performance	0.366	0.317	0.119	3.075	**
Government policy support → Insurance supply capacity	0.463	0.592	0.063	7.321	***
Government policy support → Farmers' effective demand	0.335	0.531	0.056	6.017	***
Insurance supply capacity → Farmers' effective demand	0.336	0.417	0.071	4.737	***
Insurance supply capacity → Agricultural insurance performance	0.395	0.267	0.137	2.877	**
Farmers' effective demand → Agricultural insurance performance	0.725	0.395	0.271	2.674	**

Note: * indicates $p < 0.05$; * * indicates $p < 0.01$; * * * indicates $p < 0.001$.

4.2.5.4 Mediation effect test

This study utilized AMOS 24.0 software. It employed the Bootstrap method to conduct 5,000 sample re-sampling. We tested the mediating effects in the structural equation model at a 95% confidence interval. The criterion was as follows: if the 95% confidence interval for the indirect effect did not contain 0, then the mediating effect existed; otherwise, the mediating effect did not hold. The test results are shown in Table 4.38:

1) The point estimate for the mediating path “Government Policy Support → Insurance Supply Capability → Agricultural Insurance Performance” was 0.158, with a 95% confidence interval of [0.022, 0.274]. It did not include 0, indicating that insurance supply capability has a mediating effect in the relationship between government policy support and agricultural insurance performance;

2) The point estimate for the mediating path “Government Policy Support → Farmers’ Effective Demand → Agricultural Insurance Performance” was 0.21, with a 95% confidence interval of [0.065, 0.482]. It did not include 0, indicating that farmers’ effective demand has a mediating effect in the relationship between government policy support and agricultural insurance performance;

3) The point estimate for the mediating path “Government Policy Support → Insurance Supply Capability → Farmers’ Effective Demand → Agricultural Insurance Performance” was 0.098, with a 95% confidence interval of [0.029, 0.254]. It did not include 0, indicating that both insurance supply capability and farmers’ effective demand have a chain mediating effect in the relationship between government policy support and agricultural insurance performance.

Table 4.56 Test of mediation effect by Bootstrap method

Trails	Estimate	SE	95% Confidence Interval	
			Upper limit	Lower limit
Total effect: government				
policy support → agricultural insurance performance	0.782	0.04	0.701	0.858
Direct effect: government				
policy support → agricultural insurance performance	0.317	0.128	0.058	0.519
Total Indirect Effect	0.466	0.117	0.304	0.73
Indirect effect 1: government				
policy support → insurance supply capacity → agricultural insurance performance	0.158	0.068	0.022	0.274
Indirect effect 2: government				
policy support → farmers' effective demand → agricultural insurance performance	0.21	0.113	0.065	0.482
Indirect effect 3: government				
policy support → insurance supply capacity → effective farmers' demand → agricultural insurance performance	0.098	0.058	0.029	0.254

Chapter 5

Conclusion Discussion and Recommendations

The Study of "Study on influencing factors of policy agricultural insurance performance in Guangdong Province" is a mixed study of qualitative and quantitative methods. Objective: 1) Whether it is necessary to study the factors of the performance of policy agricultural insurance in Guangdong Province and the influencing factors and experience of the performance of policy agricultural insurance in Guangdong Province (through qualitative research); 2) To test the structural equation model (through quantitative research) of the factors affecting the performance of policy agricultural insurance in Guangdong Province, and verify whether the model established in this study is consistent with empirical data. In Chapter 5, the presentation is divided into 3 topics :1) a summary of the qualitative and quantitative findings, 2) a discussion of the findings, and 3) recommendations, with details of each topic as follows:

5.1 Research Summary

5.1.1 The Findings of Qualitative Research

In response to research objective 1: Whether it is necessary to study the factors of the performance of policy agricultural insurance in Guangdong Province and the influencing factors and experience of the performance of policy agricultural insurance in Guangdong Province. The qualitative research results are as follows:

The necessity and research Angle of the study on influencing factors of agricultural insurance performance in Guangdong Province

In the interview, experts agreed that policy agricultural insurance provides farmers with basic economic security, especially after natural disasters. Farmers generally feel that insurance can effectively reduce economic losses and enhance their resilience to risks. The implementation of the policy has promoted the stability of agricultural production and increased farmers' sources of income, which has provided support for the sustainable development of agriculture.

The expert interview shows that it is necessary to study the influencing factors of agricultural insurance performance in Guangdong Province. The research results are of great significance for the rapid development of agricultural insurance in Guangdong Province, the income and risk protection of farmers, the improvement of insurance companies' own products and the research of new products.

The discussion angles are varied, and most researchers choose to discuss from the perspective of farmers and comprehensive perspectives.

It is concluded from the interview that the relationship between farmers, insurance companies and the government in agricultural insurance policies is as follows: the government makes policies, promotes policy implementation and provides subsidies. Subsidies will affect farmers' insurance participation behavior, and the government is the main guide and the main body that decides the implementation effect. Insurance companies transform policies into specific insurance products and services, and the supply capacity of insurance companies directly determines the implementation effect of insurance. Farmers are the main beneficiaries of the policy. The participation and satisfaction of farmers determine the actual effect of the policy, and the demand and feedback of farmers influence the optimization of the policy. Therefore, it will be more comprehensive and specific to study this problem from a comprehensive perspective.

This also verifies the basic assumptions of this research model and provides a basis for the subsequent quantitative analysis.

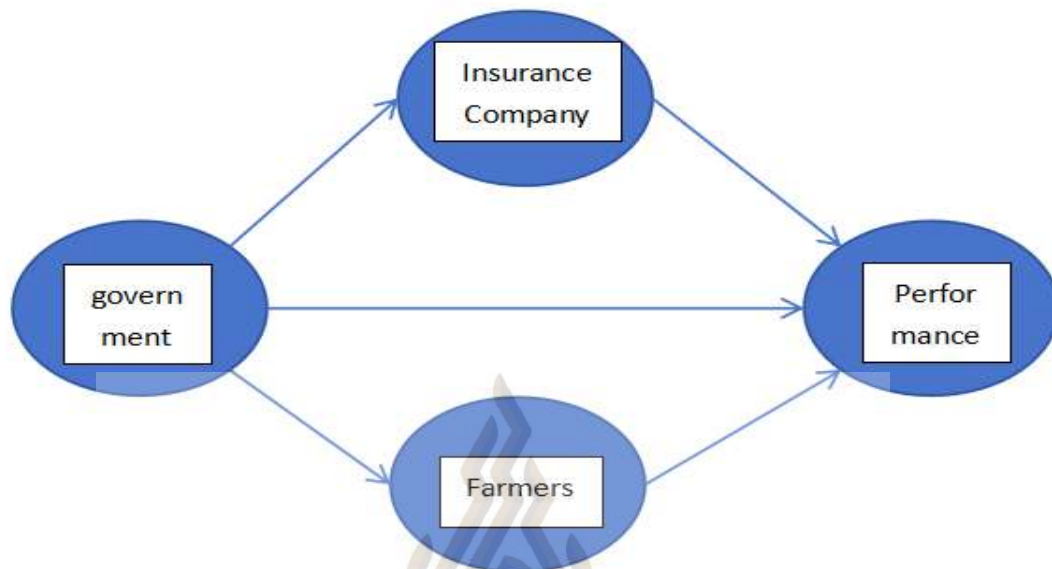


Figure 5.1 Agricultural Insurance Performance Impact Relationship

Source: Researcher

The main factors affecting the performance of policy agricultural insurance in Guangdong Province

Through interviews with experts, this paper summarizes several major factors that affect the performance of policy agricultural insurance in Guangdong Province, including: farmers' insurance awareness, policy subsidies, efficiency of claims settlement process, flexibility of insurance products, and enforcement of local governments. The interaction of these factors determines the practical effect of policy agricultural insurance.

1) Farmers' insurance awareness and participation enthusiasm

The insurance consciousness of farmers determines the implementation effect of agricultural insurance policy to a large extent. The research shows that some farmers in Guangdong Province still have insufficient understanding of agricultural insurance, and many farmers lack a clear understanding of insurance terms and claims

settlement process, resulting in low willingness to participate in insurance. In particular, some farmers with poor economic conditions still keep a wait-and-see attitude towards participation, even if there is government subsidy support. This phenomenon shows that the actual effect of policy implementation largely depends on farmers' risk awareness and insurance awareness.

In order to increase the insurance participation rate of farmers, insurance education and policy publicity should be strengthened in the future to help farmers better understand the significance of agricultural insurance and its economic security benefits. Through the publicity and training activities at the village level, the guidance of agricultural technology extension personnel, and the promotion of grass-roots cadres, farmers' risk awareness can be improved and their enthusiasm to participate in insurance projects can be enhanced.

2) Government subsidy intensity and coverage

The government's financial subsidy is one of the important driving forces to promote farmers to participate in the insurance. The subsidy policy of policy agricultural insurance in Guangdong Province has been increasing year by year. By directly subsidizing the premiums of farmers, the government has reduced the economic burden of farmers and promoted the improvement of their willingness to participate in insurance. Interviews with experts show that the coverage and proportion of subsidies directly affect farmers' insurance participation decisions, especially in vulnerable groups and small farmers, subsidies play a key role.

However, the existing subsidy policy still has room for improvement. For example, although the subsidy policy has effectively reduced the insurance cost of farmers on the whole, there is still an imbalance in the subsidy distribution mechanism in some regions, especially in remote areas, the implementation and publicity of the subsidy policy is weak. In the future, the government can further optimize the subsidy distribution mechanism to ensure that subsidies can effectively cover the most needy

farmer groups, especially vulnerable groups and small farmers.

3) Enforcement by local governments

Local government plays an important role in the implementation of policy agricultural insurance. Local governments are not only responsible for the implementation and supervision of policies, but also undertake the responsibility of publicity and promotion. It is found that the implementation intensity and publicity effect of local government directly affect the participation rate and satisfaction rate of farmers. In some areas with strong enforcement, farmers have a higher awareness of insurance participation, and the service quality of insurance companies is relatively good. In some areas where the implementation is weak, the implementation effect of the policy is not ideal.

In order to ensure the efficient implementation of policies, local governments should further strengthen supervision in the future to ensure that the implementation of policies is transparent and fair. At the same time, by strengthening cooperation with insurance companies, actively guide and promote insurance companies to improve their service level, and optimize the landing effect of policies through data sharing and scientific and technological means.

4) Efficiency and transparency of the claims process

The efficiency of claim settlement directly affects farmers' trust in agricultural insurance and their willingness to participate in insurance. According to the expert interviews, the current claim settlement process in some areas of Guangdong Province is complicated and the cycle is long, which leads to the low satisfaction of some farmers on insurance services. After a disaster, fast and effective claim settlement is an urgent guarantee for farmers. However, the existing claim settlement procedures, especially in remote areas, often take too long due to cumbersome procedures and asymmetric information, making it difficult for farmers to obtain sufficient economic

support in a short period of time.

The optimization of the claims process is not only about the reduction of time, but also about the transparency of the process and the simplicity of operation. In the future, the government and insurance companies can improve the efficiency of claims by simplifying claims procedures, improving the transparency of the process, and introducing more technological means (such as big data and intelligent assessment systems) to further enhance farmers' trust in agricultural insurance.

5) Flexibility and diversity of insurance products

The agricultural planting structure of Guangdong Province is complex and diverse, and farmers in different regions face different risks. Although the types of existing policy agricultural insurance products are gradually enriched, they still cannot fully meet the individual needs of different regions and different farmers. For example, existing products lack sufficient flexibility to deal with new risks brought about by long-term climate change and market fluctuations.

In the future, insurance companies need to be more flexible in product design and develop more targeted insurance products according to the characteristics of agricultural production, economic conditions and risk situations in different regions. At the same time, with the development of smart agricultural technology, data-driven personalized insurance products will provide more accurate protection for agricultural insurance, ensuring that farmers can choose the right insurance plan according to their own needs.

This part of the interview results verified the correctness of the selection of relevant variables in the model.

Challenges and opportunities of policy agricultural insurance in Guangdong Province

Although the policy agricultural insurance in Guangdong Province has made remarkable progress in the past decade, it still faces many challenges in the face of the future risk environment. Especially with the intensification of climate change, the frequent occurrence of natural disasters has caused more uncertainty to agricultural production. Under this background, agricultural insurance in Guangdong Province needs to be more intelligent and refined to cope with complex and changeable agricultural risks.

The application of scientific and technological means is the key to improve the performance of agricultural insurance in the future. Through big data, the Internet of Things, and satellite remote sensing technologies, insurance companies can more accurately assess agricultural risks and quickly settle claims after disasters. The application of these technologies can not only improve the efficiency of claims, but also reduce human errors in operation and reduce the operating costs of insurance companies. However, the popularization of these technologies still faces certain challenges among grass-roots farmers, especially in remote rural areas, where farmers' acceptance of emerging technologies is low and it is difficult to promote them.

In the future, Guangdong Province can promote the development of agricultural insurance in the direction of intelligence by strengthening the combination of technology and policies, and improve the adaptability and flexibility of insurance products by using modern technology. At the same time, the policy level should continue to increase support for vulnerable groups and small farmers to ensure that they can be better protected from agricultural risks.

The results of this part of the interview can help this paper to write the subsequent suggestions and strategies for the performance improvement of policy agricultural insurance in Guangdong Province.

5.1.2 A Summary of Quantitative Research

The quantitative research was designed for responding to research question No. 2: To test the structural equation model (through quantitative research) of the factors affecting the performance of policy agricultural insurance in Guangdong Province, and verify whether the model established in this study is consistent with empirical data. The findings are summarized in 2 parts as follows:

5.1.2.1 Part 1: The Findings of the Descriptive Analysis

1) General information of the respondents

Of 386 respondents, most of them were male, middle-aged, and almost half of them had only a secondary education. In terms of family size, 3-4 people accounted for the highest proportion of family size, and most respondents had small families.

2) Agricultural information of the respondents

Agricultural information of 386 respondents, crop cultivation accounted for the highest proportion, reaching more than half. The farm size is mainly 3-5 hectares. The proportion of farmers with 10-20 years of agricultural experience is the highest.

3) Agricultural insurance information of the respondents

According to the agricultural insurance information of 386 samples, there is little difference in the proportion of crop insurance, livestock insurance and comprehensive insurance, which shows that farmers have a high participation in all kinds of agricultural insurance. The insurance period of 3-5 years is the most common, and more than half of the farmers have filed claims, indicating that agricultural insurance has played an important role in practical application.

5.1.2.2 Part 2: A Summary of the Findings of Inferential Statistics

This study involves four main variables, namely government policy support,

insurance supply capacity, farmers' effective demand and agricultural insurance performance. Correlation coefficients among variables: Government policy support was significantly positively correlated with agricultural insurance performance ($r=0.62$, $p < 0.01$), that is, the research hypothesis H1 was initially supported; Government policy support was significantly positively correlated with insurance supply capacity ($r=0.453$, $p < 0.01$), that is, the research hypothesis H2 was initially supported. Government policy support was significantly positively correlated with farmers' effective demand ($r=0.56$, $p < 0.01$), that is, the research hypothesis H3 was initially supported. There was a significant positive correlation between insurance supply capacity and farmers' effective demand ($r=0.512$, $p < 0.01$), that is, the research hypothesis H4 was initially supported. There was a significant positive correlation between insurance supply capacity and agricultural insurance performance ($r=0.567$, $p < 0.01$), that is, the research hypothesis H5 was initially supported. There was a significant positive correlation between farmers' effective demand and agricultural insurance performance ($r=0.591$, $p < 0.01$), that is, the research hypothesis H6 was initially supported.

Significant impact of government policy support: The results show that government policy support has a significant positive impact on agricultural insurance performance, and the standardized path coefficient is 0.317, $p < 0.01$. This indicates that government support and subsidy policies are crucial to improving the overall performance of agricultural insurance.

The key role of insurance supply capacity: Insurance supply capacity also significantly affects agricultural insurance performance, and the standardized path coefficient is 0.267, $p < 0.01$. The results highlight the role of insurance companies in product design, service quality and speed of claims settlement.

Effect of farmers' effective demand: The relationship between farmers' effective demand and agricultural insurance performance has also been confirmed, and the standardized path coefficient is 0.395, $p < 0.01$, indicating that farmers' participation

willingness and demand directly affect the insurance performance.

The existence of intermediary effect: The research also found that there is an intermediary effect between the supply capacity of insurance and the effective demand of farmers on the government policy support and the performance of agricultural insurance. Estimates of these mediating paths suggest that government support not only directly affects insurance performance, but also indirectly promotes performance by improving supply capacity and stimulating farmers' demand.

The fit of the model is good: all the fit indexes (such as CMIN/DF, RMSEA, CFI, etc.) have reached an acceptable level, indicating that the structural equation model constructed in this study has a good fit degree and provides a reliable basis for hypothesis testing.

All hypotheses are supported.

1) Validity and reliability analysis results of government policy support scale, insurance supply capacity scale, farmers effective demand scale, agricultural insurance performance scale

The normal distribution test was carried out on 386 questionnaire data, and the kurtosis and skewness coefficients were analyzed respectively. The results show that these data basically conform to normal distribution. Cronbach's α coefficient of government policy support scale is 0.91, Cronbach's α coefficient of insurance supply capacity scale is 0.9, Cronbach's α coefficient of farmers' effective demand scale is 0.841, and Cronbach's α coefficient of agricultural insurance performance scale is 0.932. Therefore, All scales in this study have good reliability.

The results of KMO and Bartlett sphericity test of government policy support scale are as follows: KMO value is 0.889, greater than 0.6, and Bartlett

sphericity test result is significant (Sig=0.000), indicating that the government policy support scale is suitable for exploratory factor analysis.

The results of KMO and Bartlett sphericity test of insurance supply capacity scale are as follows: the KMO value is 0.89, greater than 0.6, and the Bartlett sphericity test result is significant (Sig=0.000), indicating that the government policy support scale is suitable for exploratory factor analysis.

The KMO and Bartlett sphericity test results of the effective demand scale for farmers are as follows: the KMO value is 0.832, greater than 0.6, and the Bartlett sphericity test results are significant (Sig=0.000), indicating that the scale of government policy support is suitable for exploratory factor analysis.

The results of KMO and Bartlett sphericity test of agricultural insurance performance scale are as follows: the KMO value is 0.939, greater than 0.6, and the Bartlett sphericity test result is significant (Sig=0.000), indicating that the scale of government policy support is suitable for exploratory factor analysis.

2) Confirmatory factor analysis:

Government policies support confirmatory factor analysis:

Government policy support confirmatory factor model fit test results: CMIN/DF=1.491, RMR=0.033, RMSEA=0.036, GFI=0.97, AGFI=0.951, NFI=0.975, RFI=0.966, IFI=0.992, TLI=0.989, CFI=0.992, that is, the fit index is within a reasonable range. It indicates that the overall fit of the government policy support confirmatory factor model established in this study is good.

The standardized factor loads of the four constructs of the government policy support scale government subsidy, regulatory support, policy stability and government publicity were all above 0.7, and the AVE values of the constructs (0.696,

0.672, 0.709 and 0.713) were all greater than 0.5. CR values (0.873, 0.860, 0.880, 0.881) were all greater than 0.7, indicating that the convergence validity of the four constructs of the government policy support scale in this study was good: government subsidy, regulatory support, policy stability, and government publicity.

The value of the square root of the mean extraction variance (AVE) of each construct is greater than the correlation coefficient between the two constructs, indicating that the four constructs of the government policy support scale in this study have good discriminative validity among government subsidies, regulatory support, policy stability and government propaganda.

Confirmatory factor analysis of insurance supply capacity

The test results of the fit of the insurance supply capacity confirmatory factor model. The results show: CMIN/DF=1.411, RMR=0.037, RMSEA=0.033, GFI=0.965, AGFI=0.948, NFI=0.967, RFI=0.957, IFI=0.99, TLI=0.987, CFI=0.99, that is, the fit index is within a reasonable range. It indicates that the overall fit of the insurance supply capacity confirmatory factor model established in this study is good.

The standardized factor loads of the four constructs of the insurance supply capacity scale, product design, premium affordability, claim rationality and service level measurement items, were all above 0.7, and the AVE values of the constructs (0.670, 0.627, 0.677, 0.623) were all greater than 0.5. CR values (0.890, 0.834, 0.863, 0.868) were all greater than 0.7, indicating that the convergence validity of the four constructs of the insurance supply capacity scale, product design, premium affordability, claim rationality, and service level were good.

The value of the square root of average extraction variance (AVE) of each construct is greater than the correlation coefficient between the two constructs, indicating that the four constructs of insurance supply capacity in this study have good discriminative validity among product design, premium affordability, claim rationality

and service level.

Confirmatory factor analysis of farmers' effective demand

The results of the fit test of the validated factor model for farmers' effective demand. The results show: CMIN/DF=1.578, RMR=0.03, RMSEA=0.039, GFI=0.975, AGFI=0.957, NFI=0.967, RFI=0.954, IFI=0.988, TLI=0.982, CFI=0.988, that is, the fit index is within a reasonable range. It indicates that the overall fit of the insurance supply capacity confirmatory factor model established in this study is good.

Convergence validity test of farmers' effective demand scale: The standardized factor loads of the three constructs of agricultural insurance awareness, risk perception and satisfaction were all above 0.7, the AVE values of the constructs (0.541, 0.612, 0.578) were all greater than 0.5, and the CR values (0.825, 0.825, 0.804) were all greater than 0.7. It shows that the three constructs of the effective demand scale of farmers in this study, namely, agricultural insurance consciousness, risk perception and satisfaction degree, have good convergence validity.

The value of the square root of the average extracted variance (AVE) of each construct is greater than the correlation coefficient between the two constructs, indicating that the three constructs of farmers' effective demand in this study have good discriminative validity among agricultural insurance consciousness, risk perception and satisfaction.

Confirmatory factor analysis of agricultural insurance performance

The results of fit test of confirmatory factor model of agricultural insurance performance. The results show: CMIN/DF=1.194, RMR=0.034, RMSEA=0.022, GFI=0.98, AGFI=0.968, NFI=0.986, RFI=0.982, IFI=0.998, TLI=0.997, CFI=0.998, that is, the fit index is within a reasonable range. It indicates that the overall fit of the validation factor model of agricultural insurance performance established in this study is good.

Test results of convergence validity of agricultural insurance performance scale: The standardized factor loads of the two constructs on the agricultural economy and the financial security measurement items provided by the industrial insurance performance scale are above 0.7, the AVE values (0.707, 0.680) of the constructs are greater than 0.5, and the CR values (0.935, 0.895) are greater than 0.7. The influence of the two constructs of the agricultural insurance performance scale on the agricultural economy and the convergence validity of the financial security provided are good.

The influence of each construct on agricultural economy and the value of the square root of the mean extraction variance (AVE) of the financial security provided are greater than the correlation coefficient between the two constructs, indicating that the two constructs of the agricultural insurance performance scale in this study have good discriminative validity between the impact of the agricultural economy and the financial security provided.

3) Structural equation model analysis

The adaptive indexes of the structural equation model established in this study are tested.

The fit test results of structural equation model: CMIN/DF=1.112, RMR=0.053, RMSEA=0.017

GFI=0.895, AGFI=0.883, NFI=0.908, RFI=0.902, IFI=0.99, TLI=0.989, CFI=0.99, all the fit indexes reached an acceptable level.

The path analysis results of variables in the structural equation model of influencing factors of policy agricultural insurance performance in Guangdong Province are summarized as follows:

(1) The standardized path coefficient of government policy support on agricultural insurance performance was 0.317, $p < 0.01$, indicating that government

policy support had a significant positive impact on agricultural insurance performance, that is, the research hypothesis H1 was supported;

(2) The standardized path coefficient of government policy support on insurance supply capacity is 0.592, $p < 0.001$, indicating that government policy support has a significant positive impact on insurance supply capacity, that is, the research hypothesis H2 is supported;

(3) The standardized path coefficient of government policy support on farmers' effective demand is 0.531, $p < 0.001$, indicating that government policy support has a significant positive impact on farmers' effective demand, that is, the research hypothesis H3 is supported;

(4) The standardized path coefficient of insurance supply capacity on farmers' effective demand is 0.417, $p < 0.001$, indicating that insurance supply capacity has a significant positive impact on farmers' effective demand, that is, the research hypothesis H4 is supported;

(5) The standardized path coefficient of insurance supply capacity on agricultural insurance performance was 0.267, $p < 0.01$, indicating that insurance supply capacity had a significant positive impact on agricultural insurance performance, that is, the research hypothesis H5 was supported;

(6) The standardized path coefficient of farmers' effective demand on agricultural insurance performance was 0.395, $p < 0.01$, indicating that farmers' effective demand had a significant positive impact on agricultural insurance performance, that is, the research hypothesis H6 was supported.

From the above findings, it can be concluded that the research hypothesis is supported. In other words, the structural equation model of factors influencing agricultural insurance performance in Guangdong Province established in this study is

consistent with the empirical data.

4) Summary of the Mediators or Mediating Variables Test

(1) The point estimate value of the intermediary path "government policy support → insurance supply capacity → agricultural insurance performance" is 0.158, and the 95% confidence interval is [0.022, 0.274], excluding 0, indicating that insurance supply capacity has an intermediary effect on the relationship between government policy support and agricultural insurance performance.

(2) The point estimate value of the intermediary path "government policy support → farmers' effective demand → agricultural insurance performance" is 0.21, and the 95% confidence interval is [0.065, 0.482], excluding 0, indicating that farmers' effective demand has an intermediary effect on the relationship between government policy support and agricultural insurance performance.

(3) The point estimate value of the intermediary path "government policy support → insurance supply capacity → farmers' effective demand → agricultural insurance performance" is 0.098, and the 95% confidence interval is [0.029, 0.254], excluding 0, indicating that insurance supply capacity and farmers' effective demand have a chain intermediary effect in the relationship between government policy support and agricultural insurance performance.

5.2 Discussion

Based on expert interviews and research findings for this study, the research discussion is divided into two parts in response to each research objective: 1) Whether it is necessary to study the factors of the performance of policy agricultural insurance in Guangdong Province and the influencing factors and experience of the performance of policy agricultural insurance in Guangdong Province; And the influencing factors and experience of the performance of policy agricultural insurance in Guangdong

Province; 2) To test the structural equation model of the factors affecting the performance of policy agricultural insurance in Guangdong Province, and verify whether the model established in this study is consistent with empirical data.

5.2.1 Discussion of expert interviews

Multi-dimensional interpretation of factors affecting the performance of policy agricultural insurance in Guangdong Province

The results show that the performance of policy agricultural insurance in Guangdong Province is influenced by many factors, including farmers' insurance awareness, government subsidies, efficiency of claims settlement process, flexibility of insurance products and implementation of local governments. These factors work together through different mechanisms to determine the implementation effect of agricultural insurance policy.

(1) The necessity and effectiveness of government policy support

In qualitative research, experts surveyed generally agree that government plays a crucial role in promoting agricultural insurance. Through financial subsidies, laws and regulations, and publicity and education, the government has not only lowered the economic threshold for farmers to participate in agricultural insurance, but also improved farmers' awareness of insurance products. This conclusion is consistent with the findings of quantitative studies, namely, there is a significant positive correlation between government policy support and agricultural insurance performance.

Key role of government subsidies: This study further confirms the important role of government subsidies in promoting farmers' participation in insurance. With the increase in the proportion of subsidies year by year, the cost of farmers to participate in the insurance has been significantly reduced, and the attraction of the

policy to farmers has also been correspondingly increased. This finding is consistent with relevant studies (Zhu & Jiang, 2019), indicating that government financial support is the key to the successful implementation of policy agricultural insurance. However, the qualitative research also points out that there is an imbalance in subsidy distribution in some areas, which is especially reflected in remote and relatively backward areas, affecting the enthusiasm of farmers in these areas to participate in insurance (Huang, 2019).

The correlation between local government implementation and policy effect: Local government plays an irreplaceable role in the implementation process of policy agricultural insurance. The research shows that the implementation intensity of local government directly affects the implementation effect of the policy. In the areas with strong enforcement, the policy publicity is in place, the interaction between insurance companies and farmers is frequent, and the enthusiasm and satisfaction of farmers are relatively high. However, in areas where enforcement is weak, the effect of the policy is often less than ideal. This is consistent with existing studies. (Huang, 2023). This paper finds that the publicity, promotion and supervision of local governments are the key links to the implementation of policies. In order to improve the efficiency of policy implementation, local governments should ensure that agricultural insurance policies can truly benefit farmers through more policy publicity, strengthening grass-roots promotion and cooperation with insurance companies.

However, experts also pointed out that there is still room for improvement in some aspects of government policy support. For example, the lack of policy stability in some regions and frequent policy adjustments lead to increased uncertainty of farmers' future expectations, which affects their enthusiasm to participate in agricultural insurance in the long run. Therefore, the government should pay more attention to the continuity and long-term nature of the agricultural insurance policy in order to enhance the confidence of farmers. In addition, the policy publicity needs to be further strengthened, especially in economically underdeveloped areas, farmers' understanding of agricultural insurance is relatively low, which is also a key factor affecting insurance

performance.

(2) Challenge and improvement of insurance supply capacity

In the interview, the experts agreed that the ability of the insurance company as a supplier of agricultural insurance directly determines the effectiveness of agricultural insurance. Specifically, the product design, claim settlement mechanism and service level of insurance companies have a significant impact on farmers' willingness to participate and insurance performance. Although government policies played an important role in promoting the development of agricultural insurance in the initial stage, insurance companies must enhance their service capabilities to achieve long-term sustainable development of agricultural insurance.

The relationship between the efficiency of the claims process and farmer trust: The simplicity and transparency of the claims process play a crucial role in improving farmers' trust in agricultural insurance. This study found that some farmers were dissatisfied with the existing claims settlement process, especially the low efficiency of claims settlement after disasters, which greatly weakened farmers' confidence in insurance participation. This problem is closely related to farmers' trust in insurance companies, and improving the claims process can help enhance farmers' confidence in insurance and further increase the insurance participation rate. This is consistent with the conclusions in the existing literature on the impact of claims procedures on insurance effectiveness (Wang, 2016).

The flexibility of insurance products and the matching of agricultural diversity: Guangdong's agricultural structure is complex and diverse, and the characteristics of agricultural production vary from region to region, which means that a single insurance product is difficult to meet the needs of all farmers. It is found that the existing policy agricultural insurance products lack sufficient flexibility and diversity, and it is difficult to fully cover the actual risks of different regions and farmers.

Expert interviews pointed out that insurance companies should design more personalized and flexible products according to regional characteristics to improve the pertinence and effectiveness of insurance.

Some experts point out that insurance companies currently lack innovation in product design, which is difficult to meet the needs of different regions and different types of agriculture. For example, the risk characteristics of farming in the south and animal husbandry in the north are quite different, but the existing agricultural insurance products are relatively simple and lack of pertinence. In addition, the complicated claims procedures and long claims have also affected farmers' trust in agricultural insurance. Therefore, insurance companies should strengthen the interaction with farmers, develop more diversified and flexible products, and simplify the claims process to improve the efficiency and quality of insurance supply. With the progress of science and technology, the future policy agricultural insurance can be more accurate and personalized. For example, the application of big data, artificial intelligence and Internet of Things technologies can design tailored insurance products for farmers in different regions to better manage agricultural risks. The exploration in this direction is in line with the trend of agricultural modernization and also provides a broad space for the future development of policy agricultural insurance (Wu, 2018).

(3) The diversity and complexity of farmers' effective demand

Experts generally agree that farmers' needs are critical to the ultimate performance of agricultural insurance, but these needs are diverse and complex. Qualitative research shows that farmers' demand for agricultural insurance is not only economic security, but also psychological risk perception and trust in insurance products. For example, some farmers are more sensitive to the perception of risks, and they are more inclined to buy agricultural insurance, while others are skeptical about insurance, believing that insurance cannot really solve their practical problems. Therefore, the government and insurance companies should enhance farmers' trust and satisfaction in agricultural insurance through more publicity and education. Insurance consciousness is one of the key factors affecting farmers' insurance participation

behavior. The study found that although policy agricultural insurance has been widely supported by the government, some farmers still have insufficient understanding of insurance clauses and claim settlement procedures. This is consistent with the findings in previous literatures, and the widespread problem of "lack of insurance cognition" in rural areas directly affects the enthusiasm of farmers to participate in insurance. (Bai,2020). Therefore, the development of policy agricultural insurance not only needs financial support, but also should increase the intensity of insurance education, especially in remote rural areas.

In addition, the interview also reflects that farmers of different economic levels have significant differences in insurance demand. Farmers with higher income pay more attention to the diversity of insurance products and claim efficiency, while farmers in less developed areas pay more attention to the cost of insurance. Therefore, the design of agricultural insurance policies should fully consider regional and economic differences, and implement differentiated insurance subsidy policies to better meet the needs of different groups.

Challenges and opportunities of policy agricultural insurance in Guangdong Province

Although policy agricultural insurance in Guangdong Province has made remarkable achievements in the past, it still faces many challenges in the future. First of all, with the increasing agricultural risks brought about by climate change, the frequent occurrence of natural disasters puts forward higher requirements for the accuracy of agricultural insurance. Second, existing insurance products are still not flexible enough to deal with new types of risks (such as market volatility, extreme weather, etc.) and cannot fully meet the needs of farmers.

However, advances in technology have provided new opportunities for agricultural insurance. The application of modern scientific and technological means such as big data, Internet of Things, and satellite remote sensing technology can not

only improve the accuracy of insurance risk assessment, but also speed up the speed of claims settlement and reduce the information asymmetry between farmers and insurance companies. Through the deep integration of technologies, the performance of policy agricultural insurance is expected to be significantly improved. The government should encourage insurance companies to further explore and promote intelligent agricultural insurance products to provide more comprehensive risk protection for farmers.

Experience of policy agricultural insurance in Guangdong Province

Through qualitative research, this study summarizes some experiences in the development of policy agricultural insurance in Guangdong Province. First, in the process of promoting agricultural insurance in Guangdong Province, the government and insurance companies have worked closely to establish a relatively complete insurance product system, covering a variety of crops and animal husbandry. Secondly, by strengthening policy publicity, Guangdong Province has improved farmers' awareness of agricultural insurance and increased insurance coverage.

However, experts also point out that Guangdong's experience is not fully applicable to other regions. Due to the relatively developed economy of Guangdong Province, farmers' insurance awareness and payment ability are relatively high, but in the economically backward areas, these factors are still the main obstacles in the development of agricultural insurance. Therefore, when other provinces learn from Guangdong's experience, they need to adjust according to local conditions to ensure that agricultural insurance policies can be effectively implemented.

Through the analysis of qualitative research, this study not only validates the assumptions of quantitative research, but also provides practical suggestions for policy makers and insurance companies. These findings are of great significance to further optimize the policy agricultural insurance system in Guangdong Province and even the whole country.

5.2.2 Discussion of qualitative findings

The core purpose of this study is to quantitatively analyze the factors affecting the performance of policy agricultural insurance in Guangdong Province through structural equation model (SEM), focusing on the relationship between government policy support, insurance supply capacity, farmers' effective demand and other possible influencing factors. Quantitative analysis is designed to validate the assumptions made in previous qualitative studies and provide data support for policy makers and insurance institutions.

The effect of government policy support on agricultural insurance performance

Through structural equation model analysis, the results show that government policy support significantly and positively affects the performance of agricultural insurance. Policy support includes four aspects: government subsidies, regulatory support, policy stability and government publicity. These policies reduce the cost of farmers' participation in agricultural insurance and enhance their awareness of risk management. This result is consistent with the qualitative conclusions of the expert interviews, and further confirms that the development of policy agricultural insurance depends on the strong promotion of the government.

Through structural equation model (SEM) analysis, the results of this study show that government policy support plays a significant and positive role in improving the performance of agricultural insurance, which is consistent with the qualitative conclusions of the expert interviews, and further confirms that the development of policy agricultural insurance depends on the strong promotion of the government. Specifically, policy support covers the following four key elements:

(1) Government subsidies: The government's subsidy policy greatly reduces the economic cost of farmers' participation in agricultural insurance, so that more farmers can bear the insurance cost. By providing financial support, the

government has effectively reduced the financial pressure of farmers in the event of natural disasters and increased their willingness to participate in insurance.

(2) Legal support: clear laws and regulations provide a guarantee for the development of agricultural insurance. The support of regulations not only enhances the confidence of insurance companies, but also provides the necessary legal protection for farmers, so that they can get the rights and interests protection they deserve when they encounter claims.

(3) Policy stability: Policy stability is an important factor to ensure farmers' long-term participation in agricultural insurance. Continued policy support can increase farmers' confidence in agricultural insurance, thereby increasing their participation and satisfaction.

(4) Government publicity: Effective publicity activities can improve farmers' awareness of agricultural insurance and enhance their awareness of risk management. Through publicity, the government makes farmers understand the function and importance of insurance, so as to actively participate in insurance.

Model analysis further points out that government subsidies, regulatory support and government publicity have a particularly significant impact on agricultural insurance performance. These factors not only directly affect farmers' participation behavior, but also potentially improve the service capability and product design of insurance companies, and promote the healthy development of the entire insurance ecosystem.

To sum up, the government's strong promotion and policy support is the cornerstone of promoting the development of policy agricultural insurance. This finding is highly consistent with the qualitative conclusions of the expert interviews, and further validates the key role of policy support in the process of improving

agricultural insurance performance. Therefore, in order to further enhance the effectiveness of agricultural insurance, it is recommended that the government continue to strengthen policy support, optimize the subsidy mechanism, and increase publicity efforts to enhance farmers' insurance awareness and enthusiasm for participation.

The impact of insurance supply capacity

Through structural equation model (SEM) analysis, the results of this study show that the supply capacity of insurance companies has a significant positive impact on the performance of agricultural insurance, which is consistent with the qualitative conclusions of expert interviews. Whether the supply capacity of insurance companies can meet the actual needs of farmers is one of the important factors affecting whether farmers buy agricultural insurance. Specifically, the supply capacity covers the following four key factors:

(1) Product design: The product design of insurance companies needs to meet the actual needs of farmers, which is an important factor affecting whether farmers buy agricultural insurance. Diversified and flexible insurance products can attract more farmers to participate.

(2) Affordability of premiums: the rationality and affordability of premiums is an important prerequisite to ensure the participation of farmers. It is found that insurance companies should consider the economic conditions of farmers and reasonably set the premium level to lower the participation threshold.

(3) Claim rationality: A fast and reasonable claim process can improve farmers' satisfaction and thus enhance their willingness to participate. The speed of claims settlement and the simplicity of procedures directly affect farmers' trust in insurance companies.

(4) Service level: high-quality service can enhance farmers' sense of experience and enhance their recognition of agricultural insurance. Good customer

service and support can increase farmer loyalty.

The study found that premium affordability, claim rationality and service level had almost the same and significant impact on agricultural insurance performance, indicating that these factors played an equally important role in influencing farmers' participation in agricultural insurance.

However, the model analysis also reveals some shortcomings in the supply capacity of insurance companies. Although the overall supply capacity has improved insurance performance, in some areas, especially product innovation for different risks and agricultural types, is still insufficient. This is consistent with the conclusions of qualitative research, pointing out the single nature of current insurance products and the limitations of services. Therefore, in the future, insurance companies should be encouraged to increase investment in research and development, introduce more flexible and diversified agricultural insurance products, improve the efficiency of claims, and improve the accuracy of risk assessment and claims through technical means, such as big data and satellite remote sensing technology.

The effect of farmers' effective demand

The results of quantitative analysis show that the effective demand of farmers is one of the core factors affecting the performance of agricultural insurance. Specifically, the effective demand of farmers is not only reflected in the demand for economic security, but also includes the perception of agricultural risks and the degree of trust in insurance products. In this regard, the findings point to several key influencing factors:

(1) Agricultural insurance awareness: farmers' cognition level of agricultural insurance directly affects their willingness to participate. Studies have shown that improving farmers' understanding and awareness of insurance products can significantly enhance their willingness to participate, and thus improve insurance

coverage and performance.

(2) Risk perception: Farmers' perception of potential agricultural risks is an important factor affecting their insurance demand. The analysis results show that risk perception has a great impact on agricultural insurance performance, and when farmers are aware of the risks they face, their demand for insurance tends to increase. This risk perception makes farmers more inclined to seek economic security and increase the insurance participation rate.

(3) Satisfaction: farmers' satisfaction with insurance products and services is an important factor affecting their future purchase decisions. The results of the study showed that increased satisfaction directly enhanced farmers' loyalty to insurance and promoted their continued participation in insurance in the future. Farmers' satisfaction with the claims process, the suitability of products and the quality of insurance services all significantly affect their satisfaction.

In addition, quantitative analysis also shows that farmers' trust in agricultural insurance greatly affects their willingness to participate. If farmers are skeptical about insurance payments, they will often opt out. Therefore, to enhance farmers' trust in agricultural insurance not only depends on the policy support of the government, but also requires insurance companies to provide transparent, fair and timely claim settlement services.

Theoretical and practical significance of structural equation model (SEM) analysis

Through structural equation model, this study quantified the effects of government policy support, insurance supply capacity and farmers' effective demand on the performance of policy agricultural insurance. The model verifies several hypotheses in qualitative research and provides empirical data support for the interaction of these influencing factors.

First, the model reveals the fundamental role of government policy support in improving insurance performance, indicating that policy intervention is particularly important in the initial development stage of agricultural insurance. This conclusion not only has theoretical significance, but also provides practical suggestions for future policy design. In policy design, the government should further strengthen the publicity and education of farmers, and ensure the continuity and stability of policies, so as to eliminate the worries of farmers.

Secondly, the positive correlation between the supply capacity of insurance companies and insurance performance is also verified by quantitative analysis. This has pointed out the direction for insurance companies in product design and service improvement: only continuous innovation and improvement of services can further expand the coverage and influence of agricultural insurance.

Finally, the diversity of farmers' needs requires policy makers and insurance companies to adopt more flexible and locally-tailored strategies when implementing agricultural insurance. Through the implementation of differentiated subsidies and services targeting the needs of farmers at different income levels and in different regions, the participation and overall performance of agricultural insurance can be better improved.

5.3 Recommendation

5.3.1 Research Recommendations

Based on the quantitative and qualitative findings, the following are recommendations for 11 factors that affect agricultural insurance performance:

(1) Government Subsidies (GS) :

The government should continue to increase fiscal subsidies, while focusing on the continuity of policies to reduce the uncertainty caused by policy

changes. In addition, for farmers with different economic conditions, differentiated incentive measures are taken to enhance the participation of agricultural insurance.

In addition, for crops and breeding projects with different risk levels, the government can formulate differentiated subsidy policies to encourage farmers to choose insurance products suitable for their production characteristics. Studies have shown that government subsidies can not only improve the participation rate of farmers, but also effectively reduce the risk of agricultural operations (Jiang, Fu, & Li, 2022).

(2) Regulatory Support (RS) :

According to the economic development level and agricultural production characteristics of different regions, regional differentiated policies and measures will be implemented to ensure that policy agricultural insurance can be effectively implemented in various regions.

Perfect laws and regulations can provide a strong legal guarantee for the implementation of agricultural insurance and increase the trust of farmers. The government should establish and improve laws on insurance contracts, claims settlement procedures, insurance fraud, etc., to ensure that farmers' legitimate rights and interests are not infringed. In addition, an independent regulatory body could be established to oversee the operations of insurance companies and ensure compliance with relevant regulations. (Tuo,2023).

(3) Policy Stability (PS) :

Frequent policy changes will make farmers lose confidence in agricultural insurance; therefore, the government should formulate long-term agricultural insurance policy planning to ensure the continuity and consistency of the policy. This stability can reduce the psychological burden of farmers and increase their willingness to participate in insurance. (Tuo,Wang & Zhu, 2023).

(4) Government Publicity (GP) :

Through publicity and education, improve farmers' cognition level of agricultural insurance and reduce information asymmetry. In addition, improve the transparency of insurance and the fairness of claims to enhance farmers' trust in agricultural insurance.

The Government should actively promote the benefits of agricultural insurance and related knowledge through multiple channels (Sun, 2023), especially in remote areas and rural areas with low information development. In addition, training courses were held to invite experts to explain the basic knowledge of agricultural insurance and the claim settlement process, so as to enhance farmers' sense of participation and identity. (Hui, 2016).

(5) Product Design (PD) :

Insurance companies should strengthen product innovation, develop more targeted agricultural insurance products, and improve the efficiency of claims services. Through the introduction of big data and other technical means to improve risk assessment and service quality.

The risk characteristics of different regions and crops are different, and insurance companies should design targeted insurance products according to the needs of farmers. For example, micro-insurance products for small-scale farmers could be introduced, or new insurance schemes against climate change could be introduced. At the same time, the terms of the product should be clear and easy to understand, avoid overly complicated claims conditions, and make it easier for farmers to accept and understand. (Zhao & Cheng, 2023).

(6) Premium Affordability (PA) :

Insurance companies should consider the income level and affordability of farmers when pricing, and reasonably set premiums to avoid farmers choosing to give up insurance due to high premiums. The government can provide some

economic support measures, such as providing a higher proportion of premium subsidies for specific vulnerable groups (such as poor farmers), so as to lower the threshold for their participation. (Wang, 2023).

(7) Reasonableness of Claim (CR) :

Simplify the claims process and use digital means to improve the transparency and efficiency of claims. Insurance companies should set up a special claims service team to ensure the timely processing of claims applications, and explain the information and process required for claims settlement to farmers in detail, so as to enhance farmers' trust and satisfaction. (Sun, 2023).

(8) Service Level (SL) :

Insurance companies can organize regular training for service personnel to enhance their professional knowledge and communication skills. In addition, farmers' feedback mechanism should be established to timely understand and solve problems encountered by customers in the service process, improve customers' sense of experience and increase their loyalty to insurance companies. (Ghosh, Gupta & Singh, 2020).

Insurance companies should expand service outlets, especially in remote rural areas, to ensure that farmers have easy access to insurance advice and claim settlement services. At the same time, establish effective communication channels between farmers and insurance companies to enhance the transparency of insurance services.

Improve the efficiency of claims service: Insurance companies should optimize the claims process, improve the accuracy of risk assessment and claims by introducing technical means such as big data and satellite remote sensing, and reduce the claim cycle and difficulty of farmers. This will not only increase farmers' satisfaction, but also increase their trust in insurance products.

(9) Agricultural Insurance Awareness (AAI) :

Regular lectures on agricultural insurance are held by township and village committees to help farmers understand the role and necessity of insurance and increase their willingness to participate. Training should be targeted at different groups of farmers, using simple and understandable language to ensure effective dissemination of information. (Zhang, Zhan & Chen, 2017).

Strengthen farmers' education and insurance awareness: The government and insurance companies should jointly promote the popularization of agricultural insurance knowledge, and enhance farmers' understanding of agricultural insurance through various forms of publicity and training. In particular, for low-income farmers with low education levels in rural areas, easy-to-understand educational resources are provided to help them fully understand the significance and advantages of insurance.

(10) Risk Perception (PR) :

The government and insurance companies should work together to make farmers aware of the various risks they may face in agricultural production and the important role of agricultural insurance in risk management through case studies and risk assessments. By improving risk perception, farmers' recognition of insurance will be enhanced and they will be more willing to participate in insurance. (Wang, 2022).

(11) Satisfaction (SD) :

Establish a farmer satisfaction survey mechanism, collect farmers' feedback on insurance services regularly, and analyze changes in their demand for products and services. According to the survey results, timely adjustment of product design and service strategies to improve farmers' satisfaction and loyalty will directly affect the promotion effect of agricultural insurance. (Gong, 2021).

Optimize the incentive mechanism for farmers to participate in agricultural insurance: For farmers with poor economic conditions, the government can

consider providing more premium subsidies or introducing additional incentive policies to lower the insurance threshold. At the same time, community mutual assistance mechanism can be established to encourage more farmers to participate in agricultural insurance through demonstration effect.

Build long-term relationships of trust: Insurance companies should strive to earn the trust of farmers by improving service quality, claims fairness and efficiency. Transparent claims process and open insurance clauses help reduce information asymmetry and increase farmers' trust and willingness to participate in agricultural insurance.

To improve the performance of policy agricultural insurance in Guangdong Province, it is necessary to start from many aspects, including improving the insurance awareness of farmers, optimizing the subsidy mechanism, innovating insurance products, improving the efficiency of claims settlement, strengthening the cooperation between the government and insurance companies, and promoting the deep integration of agricultural insurance and modern agriculture. The implementation of these strategies can not only improve the performance of policy agricultural insurance in Guangdong Province, but also provide reference for the reform and development of national agricultural insurance, and help promote the sustainable development of agricultural insurance system.

5.3.2 Academic Recommendations

For strategies to improve the performance of policy agricultural insurance in Guangdong Province, the following are further studies and suggestions in the academic field:

(1) Research on the economic effect of detailed policy subsidy mechanism

Government subsidy is one of the core factors affecting policy agricultural insurance, but the existing research on the economic effect of subsidies is

relatively sketchy, lack of detailed analysis of the effects of subsidy distribution structure, quota, payment time and other factors on farmers' insurance participation behavior and insurance performance. It is suggested that future studies will further explore the effects of different subsidy models and explore the best subsidy scheme.

(2) Deepen the research on the matching degree between insurance products and farmers' needs

The existing agricultural insurance products mainly cover crop risks, but pay insufficient attention to the diversified needs of farmers. Future research should pay more attention to the matching degree between insurance products and the actual needs of farmers, and explore the preferences of different types of farmers for insurance products and the psychological and economic motivations behind them.

(3) Explore the application effect of scientific and technological means in agricultural insurance

With the development of big data, Internet of Things and remote sensing technology, the scientific and technological application of agricultural insurance has become a research hotspot. Future research should pay more attention to the actual effect of scientific and technological means in improving the efficiency of insurance risk assessment and claims settlement, as well as the acceptance and use of these new technologies by farmers.

(4) Study on the function mechanism of local government in agricultural insurance performance

Local governments play a key role in the implementation of agricultural insurance policies. Future studies should further explore the role mechanisms of local governments in policy implementation, supervision and management, subsidy issuance, risk prevention and control, and reveal the interaction between local governments, insurance companies and farmers and their impact on insurance performance.

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APPENDICES



Appendix A

Questionnaire



Faculty of Business Administration
Rangsit University (RSU), Thailand

**STUDY ON INFLUENCING FACTORS OF POLICY AGRICULTURAL
INSURANCE PERFORMANCE IN GUANGDONG PROVINCE**

Dear Respondents,

I am a final year graduate student pursuing a dissertation in Doctor of Business Administration (DBA). at Rangsit University (RSU). in Thailand. The purpose of this survey is to explore the performance evaluation and influencing factors of Guangdong policy agricultural insurance. This survey is conducted as a partial fulfilment of the requirements for the degree of Doctor of Business Administration (DBA).

Your comments will help me understand the performance evaluation and influencing factors of Guangdong policy agricultural insurance. I am very grateful to you and for your valuable time to complete this questionnaire. Your effort will help me to achieve a better analysis for my dissertation project. Please accept my sincere gratitude for your participation in this survey.

Researcher

Zou Xiao

Questionnaire

Section 1: Demographic

Section 1.1: Personal Information

1. Age:
 - ☐ Under 30
 - ☐ 30-39
 - ☐ 40-49
 - ☐ 50-59
 - ☐ 60 and above
2. Gender:
 - ☐ Male
 - ☐ Female
3. Education Level:
 - ☐ No formal education
 - ☐ Primary school
 - ☐ Secondary school
 - ☐ High school
 - ☐ Vocational training
 - ☐ College/University
4. Household Size:
 - ☐ 1-2
 - ☐ 3-4
 - ☐ 5-6
 - ☐ More than 6

Section 1.2: Farming Information

5. Type of Farming:
 - ☐ Crop farming
 - ☐ Livestock farming
 - ☐ Mixed farming
6. Main Crops/Livestock:
 - ☐ Rice
 - ☐ Wheat
 - ☐ Maize
 - ☐ Vegetables

- ☐ Fruits
- ☐ Poultry
- ☐ Cattle
- ☐ Pigs
- ☐ Other (please specify): _____

7. Farm Size:

- ☐ Less than 1 hectare
- ☐ 1-3 hectares
- ☐ 3-5 hectares
- ☐ More than 5 hectares

8. Years of Farming Experience:

- ☐ Less than 5 years
- ☐ 5-10 years
- ☐ 10-20 years
- ☐ More than 20 years

Section 1.3: Agricultural Insurance Information

9. Are you currently enrolled in agricultural insurance?

- ☐ Yes
- ☐ No

10. If yes, which type of insurance?

- ☐ Crop insurance
- ☐ Livestock insurance
- ☐ Comprehensive insurance

11. How long have you been enrolled in agricultural insurance?

- ☐ Less than 1 year
- ☐ 1-3 years
- ☐ 3-5 years
- ☐ More than 5 years

12. Have you ever made a claim on your agricultural insurance?

- ☐ Yes
- ☐ No

Section 2: Level of opinion about Government Policy Support (GPS)

Each item will be measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Strongly Disagree	=	5
Disagree	=	4
Neutral	=	3
Agree	=	2
Strongly Agree	=	1

Variable	Level of opinion				
	5	4	3	2	1
2.1. Government Subsidies (GS)					
GS1: The level of subsidies provided by the government for agricultural insurance is sufficient					
GS2: Government subsidies make agricultural insurance more affordable for farmers.					
GS3: I am aware of the subsidies provided by the government for agricultural insurance					
2.2 Regulatory Support (RS)					
RS1: There are clear regulations supporting agricultural insurance.					
RS2: Regulatory bodies effectively enforce policies related to agricultural insurance.					
RS3: I feel protected by the regulatory framework surrounding agricultural insurance.					
2.3 Policy Stability (PS)					
PS1: Policies related to agricultural insurance are stable and predictable.					
PS2: There are no frequent changes in the government policies affecting agricultural insurance.					
PS3: Policy stability has increased my confidence in agricultural insurance.					
2.4 Government Propaganda (GP)					
GP1: The promotion of agricultural insurance is timely.					
GP1: Agricultural insurance promotion is comprehensive.					
GP1: I can get information about agricultural insurance in					

Variable	Level of opinion				
	5	4	3	2	1
many ways.					



Section 3: Level of opinion about Insurance Supply Capacity (ISC)

Each item will be measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Strongly Disagree	=	5
Disagree	=	4
Neutral	=	3
Agree	=	2
Strongly Agree	=	1

Variable	Level of opinion				
	5	4	3	2	1
3.1 Product Design (PD)					
PD1: The coverage provided by the agricultural insurance meets my needs.					
PD2: Agricultural insurance products are diverse.					
PD3: The terms and conditions of the agricultural insurance policy are flexible.					
PD4: I can easily understand the contents of the insurance clause.					
3.2 Premium Affordability (PA)					
PA1: The premiums for agricultural insurance are affordable.					
PA2: The cost of agricultural insurance is reasonable compared to the benefits.					
PA3: I am able to pay the premiums for agricultural insurance without financial strain.					
3.3 Claim Reasonability (CR)					
CR1: I have received fair compensation for my claims.					
CR2: The claim settlement ratio of my insurer is satisfactory.					
CR3: The amount of claim can effectively reduce the risk of loss.					
3.4 Service level (SL)					
SL1: The insurance procedure is simple and convenient.					
SL2: The claim procedure is simple and convenient.					
SL3: I am satisfied with the speed of damage survey.					

Variable	Level of opinion				
	5	4	3	2	1
SL4: I am satisfied with the speed of the claim settlement.					



Section 4: Level of opinion about Effective Demand of Farmers (EDF)

Each item will be measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Strongly Disagree	=	5
Disagree	=	4
Neutral	=	3
Agree	=	2
Strongly Agree	=	1

Variable	Level of opinion				
	5	4	3	2	1
4.1 Awareness of Agricultural Insurance (AAI)					
AAI1: I am aware of the benefits of agricultural insurance.					
AAI2: I understand the agricultural insurance coverage.					
AAI3: I understand the agricultural insurance claims.					
AAI4: I understand the agricultural insurance premium subsidy.					
4.2 Perception of Risk (PR)					
PR1: I understand the risks involved in production.					
PR2: I understand that the losses from the natural risks involved in production are enormous.					
PR3: My perception of agricultural insurance is generally positive.					
4.3 Satisfaction Degree (SD)					
SD1: I am satisfied with the level of agricultural insurance subsidies.					
SD2: I am satisfied with the level of agricultural insurance coverage.					
SD3: I am generally satisfied with agricultural insurance.					

Section 5: Level of opinion about Agricultural Insurance Performance (AIP)

Each item will be measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Strongly Disagree	=	5
Disagree	=	4
Neutral	=	3
Agree	=	2
Strongly Agree	=	1

Variable	Level of opinion				
	5	4	3	2	1
5.1 Impact on Agricultural Economic (IAE)					
IAE1: Agricultural insurance has a positive impact on the development of agricultural economy.					
IAE2: Agricultural insurance is conducive to the stable development of grain production.					
IAE3: Agricultural insurance is the improvement of agricultural technology.					
IAE4: Agricultural insurance has positively impacted my productivity.					
IAE5: I am able to take more risks in farming due to the protection offered by insurance.					
IAE6: The overall productivity of my farm has improved since adopting agricultural insurance..					
5.2 Financial Protection Provided (FP)					
FP1: Agricultural insurance provides adequate financial protection.					
FP2: My financial losses are minimized due to agricultural insurance.					
FP3: The insurance has helped me maintain financial stability.					
FP4: The agricultural insurance helped me get back into production.					

Expert Interviews

1. Introduction and Background

- Could you briefly describe your professional background and experience related to agricultural policy, insurance, or agricultural development in Guangdong Province?
- How familiar are you with the agricultural insurance policies implemented in Guangdong, and how have you been involved in this area?

2. Understanding the Agricultural Insurance Context in Guangdong Province

- How would you describe the current state of agricultural insurance in Guangdong Province?
- What key challenges or opportunities do you see regarding agricultural insurance in this region?
- In your opinion, what are the primary objectives of agricultural insurance policies in Guangdong?

3. Key Influencing Factors on Policy Performance

- What factors do you believe have the most significant impact on the performance of agricultural insurance policies in Guangdong?
- From which perspective (government, farmers, insurance companies) do you think it will be more comprehensive to discuss the performance of policy agricultural insurance in Guangdong Province?
- How do you see the relationship between farmers, insurers, and the government in implementing agricultural insurance policies?
- How do you think government subsidies and support affect the effectiveness and uptake of agricultural insurance programs?
- What role do you think risk management and loss assessment practices play in determining the success of agricultural insurance schemes?

4. Effective Demand of Farmers

- From your perspective, how well do agricultural insurance policies align with the needs and risks faced by farmers in Guangdong Province?
- How do farmers generally perceive agricultural insurance in this region? What factors influence their decision to participate or not participate in insurance schemes?

5.government policy support

- How is the implementation of policy agricultural insurance policy in Guangdong Province?
- How do you think government subsidies and support affect the implementation of agricultural insurance?
- What is the level of government subsidy for policy agricultural insurance in Guangdong Province? Can you give me an example?

6.Insurance Supply Capacity

- How do you think Insurance Supply Capacity affects the implementation of agricultural insurance?
- In your opinion, is the design of policy agricultural insurance in Guangdong Province reasonable? Is the premium reasonable?
- Does the service level of Guangdong policy agricultural insurance Company meet the needs of farmers?

7. Recommendations and Future Directions

- What improvements or policy adjustments do you think are necessary to enhance agricultural insurance performance in Guangdong Province?
- Are there specific technologies or innovations that could improve risk assessment, data collection, or claims processes in agricultural insurance?
- How do you see the future of agricultural insurance evolving in Guangdong, especially in light of emerging challenges or opportunities?



Appendix B

Certificate of Approval

COA. No. RSUERB2024-143



**Certificate of Approval
By
Ethics Review Board of Rangsit University**

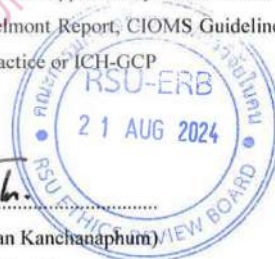
COA. No.	COA. No. RSUERB2024-143
Protocol Title	Study on influencing factors of policy agricultural insurance performance in Guangdong Province
Principle Investigator	Zou Xiao
Co-Investigator	Dr. Sorn Sutthikhun Orunruk
Affiliation	Faculty of Business Administration, Rangsit University
How to review	Expedited Review
Approval includes	1. Project proposal 2. Information sheet 3. Informed consent form 4. Data collection form/Program or Activity plan
Date of Approval:	21 August 2024
Date of Expiration:	21 August 2026
Date of Renewal:	within 21 July 2026

The prior mentioned documents have been reviewed and approved by Ethics Review Board of Rangsit University based Declaration of Helsinki, The Belmont Report, CIOMS Guideline and International Conference on Harmonization in Good Clinical Practice or ICH-GCP

Signature.....

(Associate Professor Dr. Panan Kanchanaphum)

Chairman, Ethics Review Board for Human Research



Biography

Name	Zou Xiao
Date of birth	September, 23 1989
Place of birth	Hechuan City, Chongqing Province, China
Educational background	Guilin University of Technology Master of Business Administration, 2016 Rangsit University Doctor of Business Administration, 2024
Address	No.2, Xuezhi Road, Mazhang District, Zhanjiang City, Guangdong Province, China
E-mail address	402507992@qq.com
Place of work	Zhanjiang University of Science and Technology
Work position	Full-time Faculty, School of Economics and Finance, Zhanjiang University of Science and Technology

