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INFLUENCING FACTORS OF INCOME PERFORMANCE OF NEW RETAIL "AGRICULTURAL SUPERMARKET DOCKING" COOPERATION IN GUIZHOU, CHINA

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Abstract

In order to adapt to the development of The Times and the needs of consumers, fresh food retailers involved in the docking of agricultural products supermarkets have launched fresh food consumption channels. Excellent enterprises like Yonghui supermarket and Carrefour have emerged. This means there is a dual-channel mode of agricultural supermarket docking, but the revenue performance imbalance remains a problem. Maximizing individual interests in the dual-channel "agro-super docking" of fresh food can harm overall profits in the supply chain. It affects the income of each subject in the fresh dual-channel "agriculture-supermarket docking" supply chain and the feasibility of dual-channel coordination. This paper conducts research to address these issues. This paper analyzed the background of the dual-channel connection problem between fresh agricultural products and supermarkets, and summarized the research status of fresh agricultural products industry, the development of agricultural supermarket connection mode, the coordination of dual-channel supply chain of fresh agricultural products, and profit performance. Secondly, through literature review, the main influencing factors that may affect income distribution are selected, and the empirical analysis is carried out through the structural equation method. Based on the sample data, the structural equation model is used to verify the research hypothesis and theoretical model. The theoretical model constructed in this paper is based on the theory of firm rent. Through analysis and verification, the model has a medium to high explanatory power on the influencing factors of the revenue performance of the dual-channel "agriculture-supermarket docking" of fresh food. For the dual channel "agriculture and super docking" of fresh food, the model is based on the enterprise rent theory. For the participants, it is suggested to increase the proportion of profits from two main aspects: enhancing enterprise strength and retaining technology. At the same time, the government policy plays an important regulatory role in the profit distribution of the dual-channel "agriculture and super docking" of fresh food. It can promote good cooperation between participants, improve their fresh preservation technology, reduce transaction costs, improve the profitability of participants, and indirectly affect the profit distribution of the dual-channel "agricultor-supermarket docking" of fresh food.

Keywords: New Retail, Agriculture and Super Docking, Income Performance.

1. INTRODUCTION

The Chinese government has prioritized addressing the issues of agriculture, rural areas, and farmers, with particular emphasis on the circulation of agricultural products. The efficiency of agricultural product circulation directly affects farmers' income and the market supply of agricultural products. Therefore, resolving the circulation problem is crucial for addressing the "three rural areas" issues. In recent years, the government has actively promoted and supported the "rural super docking" model. This model involves direct connections between agricultural producers and supermarkets, enabling the direct

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sale of fresh agricultural products to communities. It reduces intermediaries, lowers circulation costs, and improves efficiency. The government has also introduced favorable policies to encourage large supermarket chains like Wal-Mart, Carrefour, and Yonghui to participate in agricultural supermarket initiatives. These retailers establish direct relationships with farmers and production bases, providing stable sales channels, increasing farmers' income, and reducing purchasing costs for supermarkets. This benefits consumers by offering high-quality fresh agricultural products at reasonable prices. The Chinese government is committed to solving agricultural product circulation issues to boost farmers' income, ensure food safety, and promote consumption upgrading. Against this backdrop, this article focuses on the influencing factors of income performance in the fresh agricultural products dual-channel "agricultural supermarket docking" model. It discusses the direction to enhance cooperation and benefits among the members of this model's supply chain, facilitating stable and coordinated development.

2. LITERATURE REVIEW

2.1 Agri-supermarket docking

As a new retail model, "Agri-supermarket docking" has attracted wide attention in academia and practice. In general, the research content of "agri-supermarket docking" covers many fields such as cooperation mode, resource allocation, quality management, risk management and sustainable development. Scholars have discussed the influencing factors and effects of this model from different angles, providing valuable research results for the development of this field (Xuhui, Bo, & Zhi, 2018). However, there is still room for in-depth research on cooperation mode selection, resource utilization efficiency, risk management, etc., which provides potential directions for more comprehensive research in the future.

Analysis of cooperation model and influencing factors: In the current research environment, the analysis of cooperation model and influencing factors has become one of the core issues. Many researchers have devoted themselves to exploring the diversity of cooperation models and the role of various influencing factors from the perspective of agricultural product supply chain, providing a profound understanding of the development of this field (Yan, & Wei, 2018). The order purchase model may emphasize demand-based flexibility and improve the adaptability of the supply chain (Xuefen, & Hong, 2017).

Research has highlighted the importance of information sharing and transparency among partners in improving the quality and safety of agricultural products (Zou et al., 2015). By establishing information sharing platforms and mechanisms, partners can gain timely insights into the various stages of agricultural product production, processing, and transportation, enabling effective monitoring and quality control. However, implementing quality improvement and risk management in different environments and situations requires further in-depth research and practical exploration (Zou et al., 2015).

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2.2 Cooperative income performance

Profit distribution in supply chain cooperation has drawn significant research interest. Earlier studies focused on equal weight and proportional equity distribution. Equity proportional distribution was found to enhance partner satisfaction and cooperation stability.

Marginal and capability contribution principles were proposed to encourage partner contributions. Risk sharing and information asymmetry were also explored. Recent research utilized empirical analysis and case studies to investigate income distribution in various industries. Findings provide valuable insights for developing effective income performance strategies in supply chain partnerships.

Multi-objective optimization models generate a range of solutions, forming the "Pareto frontier" that represents various trade-offs and benefit distributions. Implementing this model helps partners consider multiple objectives and factors, leading to balanced and sustainable income performance strategies. Effective coordination and information sharing among partners are crucial for accurate input parameters and rational decision-making recommendations.

2.3 Agriculture and supermarket docking

Yonghui Superstores Co., Ltd., established in 2001, is a leading retail enterprise in China. Headquartered in Fuzhou, it is known for its innovative business model and excellent service quality. Yonghui Supermarket integrates online and offline channels to provide high-quality fresh food and daily necessities.

Its business scope includes fresh food, department stores, household goods, and more. With supermarkets, community stores, and e-commerce platforms, Yonghui Supermarket follows the philosophy of "dual-line integration, community symbiosis, co-creation, and sharing" to cater to diverse consumer needs.

Yonghui Supermarket pays attention to establish close cooperative relations with farmers, agricultural cooperatives and other producers in the cooperation between agriculture and super. Through cooperatives, production bases and other ways, to achieve direct procurement and supply, shorten the supply chain, reduce the intermediate links, thereby improving the freshness and quality of fresh products (Xuhui, Bo, & Zhi, 2018). This mode of cooperation not only helps to improve the earnings of producers, but also provides supermarkets with a steady stream of high-quality products.

3. METHODOLOGY

The research path of this study is as follows: First, literature review, collection and review of existing relevant literature and research results. By referring to academic papers, journal articles, professional books, etc., to understand the current research status, main influencing factors, and existing theories and models on the income performance of "agricultural supermarket docking" in the dual channel of fresh agricultural products at home and abroad.

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On the basis of literature review, a reasonable questionnaire was designed and compiled, covering income performance, competitiveness, trust level, cooperation willingness and other related contents. At the same time, appropriate interview subjects were selected, including farmers, heads of agricultural cooperatives, supermarket staff, etc. The actual data and views were collected through questionnaires and interviews to understand the concepts, attitudes and behaviors of participants.

The collected questionnaire survey data were collated and statistically analyzed to obtain information such as income performance, competitiveness, trust and cooperation willingness of different participants. At the same time, the interview results were summarized and summarized one by one, and the interviewees' cognition and views on the factors affecting income performance were understood from the perspective of the interviewees.

The structural equation model (SEM) is established based on the questionnaire data, and the corresponding path model is constructed by combining the independent variables and dependent variables set in chapter 1. Through SEM empirical analysis, the influence degree and statistical significance of each variable on the dependent variable were evaluated.

According to the empirical results of structural equation model, the influence degree and direction of each variable on income performance are analyzed. Further, according to the comprehensive analysis of empirical results and interviews, targeted countermeasures and suggestions are put forward, including optimizing the income performance mechanism, strengthening the trust building among partners, and improving the level of competitiveness.

At the same time, according to the research results, it provides theoretical support and practical guidance for the long-term and stable development of agricultural and super docking cooperation.

Choose the interviewee and inform him that the purpose of this interview is only for investigation and research. The interview outline was designed according to the existing literature. Several interviewees were interviewed according to the interview outline.

Based on the rooted theory (Pang&Ye, 2019) and related literature, NVivo software was used to summarize the factors affecting the revenue performance of the new retail "agricultural and supermarket docking" cooperation through open coding, axial coding and selective coding (Yao, Zhang, & He, 2014). Finally, the paper constructs a conceptual model of the factors influencing the revenue performance of the new retail cooperation.

This study selects factors with a solid theoretical basis, which have been extensively researched and proven to be important in income performance. The theoretical foundation ensures the accuracy of our research framework in capturing the real situation. The paper focuses on the representativeness and comprehensiveness of key R&D systems, covering various fields in the fresh double-channel "agricultural supermarket docking" cooperation.

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This ensures that the framework comprehensively considers the impact of different factors, accurately reflecting the complexity of income performance. The selected influencing factors and measurement indicators are operational, allowing practical application in investigations and empirical analysis, providing valuable references for decision-making.

The constructed conceptual framework (Figure 3.1) combines 7 hypotheses, 6 dependent variables, and independent variables related to each dependent variable. This framework enables a better understanding of the key factors influencing income performance in the fresh dual-channel "agricultural and super docking" cooperation and provides systematic guidance for subsequent empirical analysis.

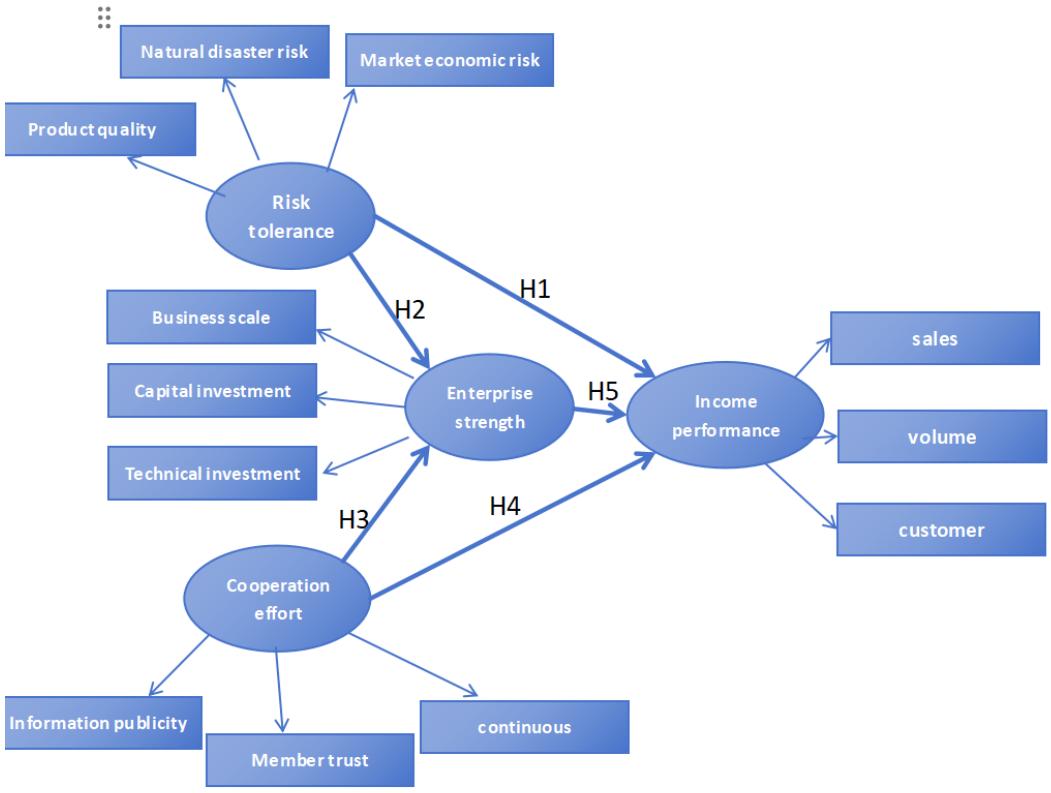

Figure 3.1: Conceptual Framework

Before the formal questionnaire is formed, it is necessary to evaluate the reliability and validity of the initial questionnaire through IOC test and pilot test, then according to the results of expert evaluation and data analysis of a small sample, modify and delete inappropriate measurement items, adjust the questionnaire structure, and finally form the formal questionnaire with better reliability and validity.

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The reliability test and validity test of initial questionnaire mainly includes IOC test for content validity, Cronbach α coefficient method for reliability and factor analysis for structure validity in pilot test. Finally, the initial questionnaire according to pilot test results. The procedure was as shown in Figure 3.2.

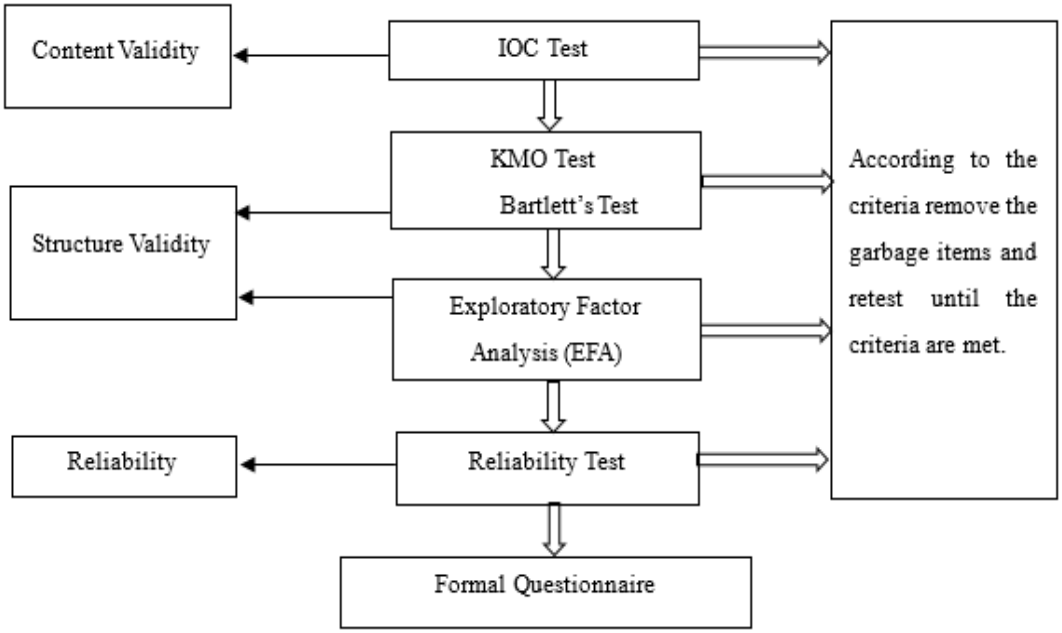

Figure 3.2: IOC and Pilot Test Procedure

4. RESULTS

According to the research method of Lindeman et al. (1980), by expanding the sum of measurement dimensions of each variable (12 items in total) by 20 times, 240 live audience members were randomly selected for investigation in this study.

Such a design is based on 12 variables involved in this paper, including 4 independent variables, each corresponding to 3 measurement dimensions. Therefore, in order to ensure the statistical validity and representativeness of the research results, the number of questionnaires was set at 240.

This quantitative setting not only takes into account the necessity of covering all relevant dimensions, but also enhances the accuracy and reliability of data analysis by expanding the sample base, thus providing a solid empirical basis for in-depth research on the impact of independent variables on dependent variables.

In this study, data from the first part of 382 valid formal scale questionnaires about respondents' demographic profile was analyzed by frequency and percentages through software SPSS, which including gender, age, average monthly disposable income, education background and profession.

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The statistical results were shown in Table 4.1.

Table 4.1: Sample Characteristics Analysis

Profile	Category	Number	Percentage (%)
Gender	Male	164	42.9
	Female	218	57.1
Age	18-25 years old	114	29.8
	26-30 years old	113	29.6
	31-40 years old	65	17
	41-50 years old	73	19.1
	More than 50 years	17	4.5
Average monthly disposable income	Below 5000 yuan	94	24.6
	5001-10000 yuan	109	28.5
	10001-20000 yuan	97	25.4
	More than 20000 yuan	82	21.5
Education background	Senior high school and below	97	25.4
	College degree	105	27.5
	Bachelor degree	88	23
	Graduate degree	92	24.1
Profession	School student	25.7	25.7
	Office worker	25.9	25.9
	Freelance	25.1	25.1
	Others	23.3	23.3

Note. Adapted from SPSS Software Result (N=382).

Based on the given data, 42.9% of respondents are males, while 57.1% are females. The age distribution is relatively balanced, with 18-25 years old at 29.8%, 26-30 years old at 29.6%, 31-40 years old at 17%, 41-50 years old at 19.1%, and over 50 years old at 4.5%. Monthly disposable income shows a fairly even distribution: below CNY 5,000 at 24.6%, CNY 5,001-10,000 at 28.5%, CNY 10,001-20,000 at 25.4%, and above CNY 20,000 at 21.5%. Educational backgrounds vary, with high school or below at 25.4%, junior college at 27.5%, bachelor's degree at 23%, and master's degree or above at 24.1%. Occupational distribution is also relatively even: students at 25.7%, office workers at 25.9%, freelancers at 25.1%, and other occupations at 23.3%.

The steps of structural equation modeling analysis generally include model definition and identification, model fitting, model evaluation and model modification. Model modification is to revise the model according to the model fitting and model evaluation (Wu, 2009).

1) Definition and Identification of Structural Equation Modeling. In this study, using software AMOS, maximum likelihood method (ML) was adopted to analyze 12 measurement models in conceptual framework except for moderating variable homogeneity, because moderating effect was analyzed by multi-group analysis in SEM.

First, the measurement models were identified. There were 12 measurement models, including Product Quality Risk (PQ), Natural Disaster Risk (ND), Market Economic Risk

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(ME), Information Publicity (PV), Member Trust (MT), and Continuous Cooperation (CC), Business Scale(BS), Capital Investment(GI) , Technical Investment(TI), Customer(C), Sales (S), Volume(V),as shown in Figure 4.3.According to Gerbing & Anderson(1985), every three measurement items respectively indicate that each factor has at least three indicators, and the errors are not correlated. It can be seen that each index has five toilet spirit items, and all errors are uncorrelated. Thus, the measurement model was successfully identified.

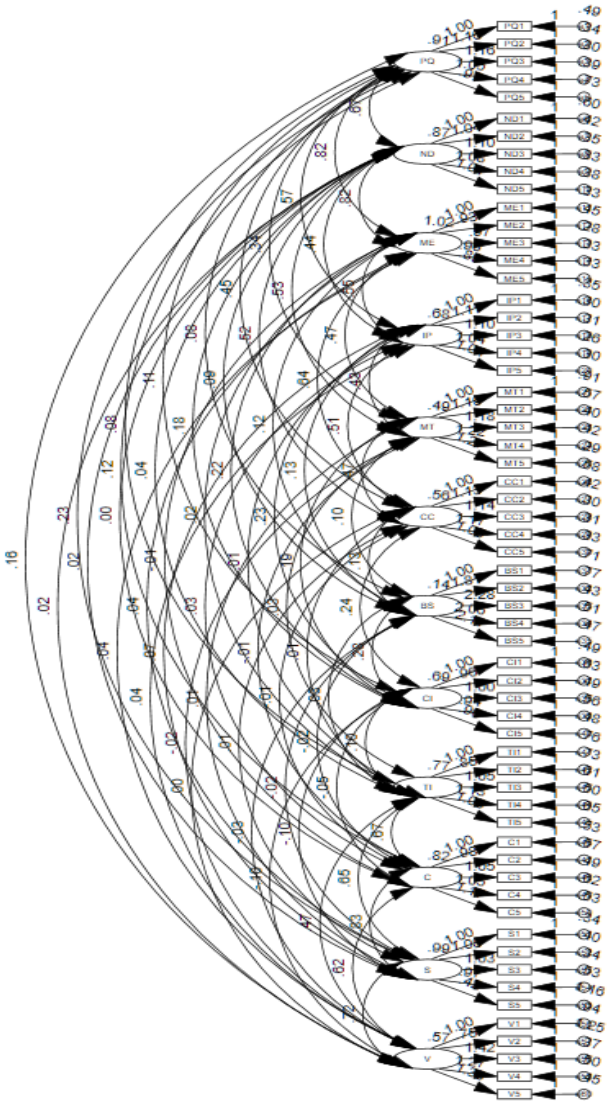

Figure 4.1: Output of CFA Model of Independent Variables

Note. Adapted from Amos Software.

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Second, the measurement models were analyzed by software AMOS with maximum likelihood method (ML). The confirmatory factor analysis results of the data obtained from the formal investigation with 382 validate questionnaires.

As can be seen from Table 4.2, according to model fit index and criterion of confirmatory factor analysis (CFA), as shown in Table 3.12 (Dawn, 2010), both the absolutely model fit index (χ^2/DF =2.712, GFI=0.933, AGFI=0.98) and the incremental model fit index (CFI=0.911 NFI=0.933, RMSEA=0.052) all reached satisfactory criteria. Thus, the measurement model in this study fitted well.

Table 4.2: Model Fit Index of Independent Variables

Model Fit	Absolutely Model Fit					Incremental Model Fit		
	χ^2	DF	χ^2/DF	GFI	AGFI	CFI	NFI	RMSEA
Criterion	-	-	1<χ^2/DF<3	>0.9	>0.9	>0.9	>0.9	<0.08
Results	1121.5	382	2.712	0.933	0.98	0.911	0.933	0.052

Note. Adapted from Amos Software and Hair et al.

2) Path Analysis and Main Hypotheses Test. For path analysis and testing of related direct hypotheses, AMOS, a structural equation analysis software, was used in this study. The maximum likelihood method was specifically adopted. The analysis results were shown in Table 4.3. As can be seen from Table 4.3, according to criteria of the standardized factor loading for each item, based on the analysis results, the hypotheses and their corresponding results are as follows:

H1: There is a significant positive relationship between RT (Risk Tolerance) and IP (Income Performance). The estimated parameter is 0.299 with a standard error of 0.105. The t-value is 2.833, and the p-value is 0.005. The hypothesis is supported.

H2: There is a significant positive relationship between RT (Risk Tolerance) and ES (Enterprise Strength). The estimated parameter is 0.203 with a standard error of 0.05. The t-value is 4.026, and the p-value is <0.001 (indicated by ***). The hypothesis is supported.

H3: The CE (Cooperation Effort) has a positive impact on the ES (enterprise Strength). The estimated parameter is 0.271 with a standard error of 0.12. The t-value is 2.256, and the p-value is 0.024. The hypothesis is supported.

H4: There is a significant positive relationship between CE (Cooperation Efforts) and IP (Income Performance). The estimated parameter is 0.171 with a standard error of 0.074. The t-value is 2.316, and the p-value is 0.021. The hypothesis is supported.

H5: There is a significant positive relationship between IP (Income Performance) and ES (Enterprise Strength). The estimated parameter is 0.213 with a standard error of 0.036. The t-value is 5.899, and the p-value is <0.001 (indicated by ***). The hypothesis is supported.

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Table 4.3: Model Fit Index of Independent Variables

Hypothesis	Path	Significance Estimation of Parameter					Hypothesis Result
		Un-std.	S.E.	t-value	P	Std.	
H1	RT<-IP	0.299	0.105	2.833	0.005	0.319	Support
H2	RT<-ES	0.203	0.05	4.026	***	0.252	Support
H3	ES<-ST	0.271	0.12	2.256	0.024	0.276	Support
H4	CE<-IP	0.171	0.074	2.316	0.021	0.17	Support
H5	IP<-ES	0.213	0.036	5.899	***	0.246	Support

Note. Adapted from Amos Software. *p<0.1, **p<0.05, ***p<0.01.

Therefore, the final structural model results are shown in Figure 4.2.

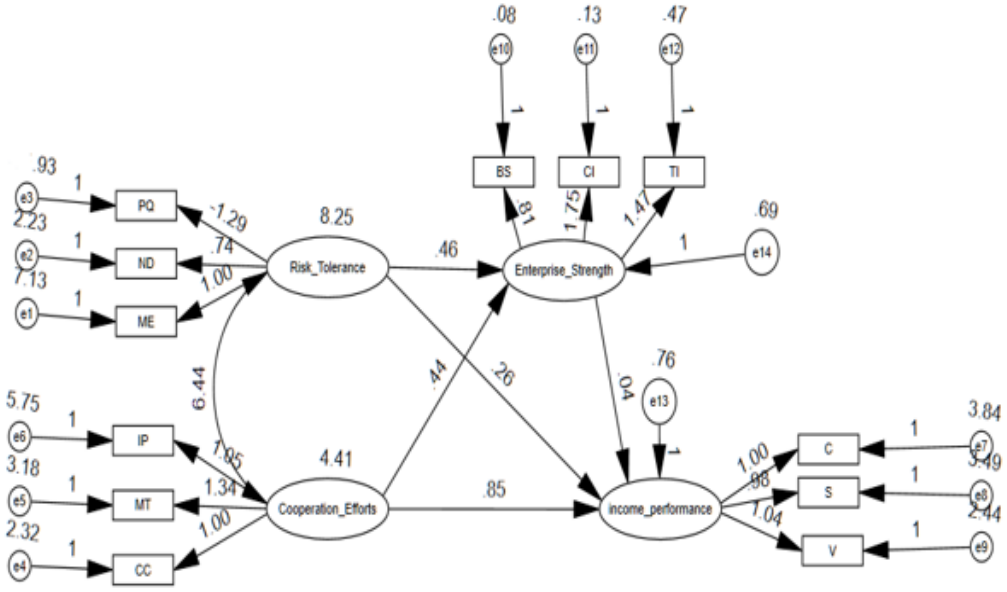

Figure 4.2: Structural Equation Model

In summary, according to the hypothesis testing results, it can be concluded that H1, H2 H3 H4 and H5 hypotheses are supported.

5. CONCLUSION

According to the qualitative analysis results of NVivo 11 software, Find out the income performance that affects "agricultural supermarket connection" including Risk Tolerance, Cooperation Efforts, Enterprise Strength, And it is concluded that the relationship between them Risk Tolerance, Cooperation Effort directly affects income performance; Enterprise Strength positively affects Risk Tolerance and Cooperation Efforts, Cooperation Efforts positively modifies the impact strength of Risk Tolerance and Cooperation Effort on income performance. Finally, the paper puts forward the theoretical model and research hypothesis that affect the mechanism of "agricultural supermarket connection".

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According to descriptive statistics of demographic profile, the distribution of the respondents confirmed to the actual situation and can support the research. According to descriptive statistics of measurement items, the mean values of all four variables were above average. According to correlations between variables, there was a significant correlation (all $p<0.01$) between endogenous variables and exogenous variables in this study, which was in line with the theoretical expectation. According to CFA, six measurement models (except moderating variable) in this study were met criteria which had good reliability, content validity, structure validity, convergent validity and discriminant validity, indicating they could be used for further structural equation modeling (SEM) analysis in the following step.

The multi-group analysis method of SEM was adopted by software AMOS in this study to explore the moderating effect of homogeneity among influencers, cosmetics and consumers on the influence strength of consumers' purchase intention on purchase behavior. The testing results of research hypotheses were summarized in Table 5.1.

Table 5.1: Results of Hypothesis Test

NO.	Research Hypotheses	Result
H1	Risk tolerance has a positive impact on the income performance of the "agricultural supermarket docking" cooperation.	Support
H2	Risk tolerance has a positive impact on the enterprise strength of the "agricultural supermarket docking" cooperation.	Support
H3	The cooperation effort has a positive impact on the enterprise strength of the "agricultural supermarket docking" cooperation.	Support
H4	The cooperation effort has a positive impact on the income performance of the "agricultural supermarket docking" cooperation.	Support
H5	Enterprise strength has a positive impact on the income performance of the "agricultural supermarket docking" cooperation.	Support

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