

Research on the Willingness and Influencing Factors of Urban and Rural Residents to Purchase Inclusive Supplementary Medical Insurance

-- Taking Anhui "Anhui Huibao" as an Example

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Abstract

The customized commercial supplementary medical insurance with Chinese characteristics, characterized by active government participation, market-oriented operation of insurance companies, voluntary participation of residents, and protection for major diseases, has filled the gap between social basic medical insurance and traditional commercial health insurance, and has become an important breakthrough in building a multi-level medical insurance system in China. To understand the willingness of residents in Anhui Province to purchase "Anhui Huibao" and explore its potential market, expand the coverage of this commercial health insurance in the province. This article uses a binary logistic regression model to analyze the significant factors affecting the purchase intention of "Anhui Huibao". Among them, there is a significant negative correlation between the economic level of the respondents and their willingness to purchase commercial health insurance; There is a significant positive correlation between the number of hospitalizations of respondents in the past two years, their awareness of the cost of treating major diseases, and the age restriction of policyholders in Anhui Huibao, as well as their willingness to purchase. Finally, this article proposes suggestions.

Keywords

Anhui Huibao; Binary Logistic; Willingness to Participate in Insurance.

1. Introduction

Since 2012, the balance of the resident medical insurance fund has been decreasing year by year, resulting in significant payment pressure. At the same time, the treatment and protection of basic medical insurance are relatively insufficient, especially for major diseases such as malignant tumors, and the burden of personal out of pocket expenses remains heavy. According to the Statistical Bulletin of China's medical security industry, the proportion of personal self paid medical expenses in China is 46%. On the one hand, the financing pressure of medical insurance funds is gradually increasing; On the other hand, people's demand for medical services far exceeds the medical level of basic medical insurance. It is urgent to develop commercial insurance and promote the construction of a multi-level medical security system. In March 2016, the China Banking and Insurance Regulatory Commission released the Outline of the 13th Five Year Plan for the Development of China's Insurance Industry, which mentioned "vigorously developing inclusive insurance and various types of small insurance products", laying the foundation for the development of urban universal medical insurance. At the beginning of 2020, the China Banking and Insurance Regulatory Commission issued the

"Opinions on the Development of Commercial Insurance in the Field of Social Services", paving the way for the development of urban inclusive medical insurance. Many cities actively pilot "Urban Inclusive Medical Insurance" with the help of the government, promoting the rapid development of commercial medical insurance. In March 2020, the Central Committee of the Communist Party of China and the State Council issued the "Opinions on Deepening the Reform of the Medical Security System", requiring the construction of a medical security system with basic medical insurance as the main body, medical assistance as the basis, supplementary medical insurance, commercial health insurance, charitable donations, and medical mutual assistance as the main content by the end of 2030. The sustainable operation of Anhui Huibao faces many challenges. At present, there are significant differences in the development of welfare insurance in different regions. In some regions, the participation and loss rates of welfare insurance products are low, and healthy individuals lack the motivation to continue to participate, resulting in a shrinking premium pool, ineffective dilution of operating costs, difficulty in controlling risks for insurance institutions, and high risk of product "death spiral". To ensure its sustainability, it is necessary to innovate the operating mechanism and increase the participation rate.

Domestic scholars have a relatively unified definition of Anhui Huibao, with most scholars defining it as a "government led, commercial insurance undertaken, and voluntary participation" inclusive commercial health insurance [1-4]. At present, there is no nationwide welfare insurance product available. Welfare insurance products in various provinces of China exhibit a business model of "one city, one insurance" or "one city, multiple insurance", and only residents who have participated in medical insurance are eligible to purchase welfare insurance products. Therefore, welfare insurance is also defined as "urban customized supplementary medical insurance" [5], which is a new attempt to improve the medical insurance system and promote modernization of government governance at the medical insurance level [6]. Because it is defined as an inclusive supplementary medical insurance, "inclusiveness" and "protection against major illnesses" are its two main characteristics, which can be further explained as "low premium, high coverage, wide threshold" and "protection against major illnesses" [7]. Since its inception, the sustainability of welfare insurance has always been a hot topic of discussion in academia. Most scholars believe that the development of welfare insurance products has special advantages and broad prospects. Su Zerui believes that policy support and government intervention are the most important factors in promoting the booming development of welfare for the people. The policy encourages the construction of a multi-level medical security system, and government departments actively provide credibility endorsement, providing important guarantees for the sustainable development of welfare insurance[8]. Zhang Lu believes that Anhui Huibao, as an inclusive supplementary commercial medical insurance product closely linked to basic medical security, can effectively solve the problems of "poverty caused by illness" and "poverty return due to illness"[9]. It is a typical product of commercial insurance services for rural revitalization. Although Anhui Huibao is highly regarded as a phenomenon level product, there are still some common problems in its development. Scholars such as Feng Jin have gained inspiration from the Hong Kong Voluntary Medical Insurance Plan and the Obama Affordable Healthcare Reform Act in the United States, believing that in the future development of the People's Health Insurance, more refined policy design should be adopted to further increase the participation rate of the People's Health Insurance; Avoiding the adverse selection risk of participating in Anhui Huibao through refined pricing [10]. Longe believes that the sustainability of "Anhui Huibao" depends on its participation rate, pricing strategy, and subsequent service management. Deducting premiums from an employee's personal medical insurance account will greatly increase their participation rate [11]. As a customized urban medical insurance, Anhui Huibao not only ensures "universality" but also has urban characteristics. This article uses a questionnaire

survey to understand the potential population with purchasing intentions for "Anhui Huibao", and based on this, analyzes the significant factors that affect their purchasing intentions. Predict the potential market size of "Anhui Huibao", combine empirical analysis results, explore the potential market of "Anhui Huibao", and improve its actual participation rate.

2. Analysis of Purchase Intention for "Anhui Huibao"

2.1. Descriptive Statistics of Basic Characteristics of Respondents

In order to better understand the attitudes of the respondents towards "Anhui Huibao" and conduct further analysis, this article conducts a simple descriptive analysis of the sample characteristics from four aspects: gender, age, income, and education.

Table 1. Descriptive statistics

Survey Characteristics	Characteristic Variables	Sample Statistics	Sample Ratio	Survey Characteristics	Characteristic Variables	Sample Statistics	Sample Ratio
Gender	Man	273	47.73	Age(Years)	Under 25	39	6.82
	Woman	299	52.27		26-35	231	40.38
Annual Income(10000 Yuan)	0-5	46	8.04		36-45	116	20.28
	5-10	70	12.24		46-55	132	23.08
	10-25	81	14.16		More than 55	54	9.44
	15-20	172	30.07	Education	Junior high school and below	76	13.11
	20-30	139	24.30		Senior high school	147	25.70
	30-40	33	5.77		Bachelor degree	277	48.43
	More than40	31	5.42		Postgraduate and above	73	12.76

2.2. Reliability and Validity Testing

2.2.1. Reliability Analysis

After conducting reliability analysis, the survey questionnaire data on "Anhui Huibao" can be obtained α The coefficient value is 0.781, which exceeds 0.7, indicating good internal consistency of the data in the questionnaire.

Table 2. Reliability Analysis Table

Cronbach's Alpha	Cronbach's Alpha based on standardization	Number of items
.781	.774	16

2.2.2. Validity Analysis

Table 3. Validity Analysis Table

KMO measurement of sampling adequacy		.972
Bartlett's sphericity test	Approximate chi square	2280.674
	df	253
	Sig.	.000

The KMO value of the survey questionnaire data is 0.792, with a $KMO \geq 0.7$ and a significance probability of 0.000, $P < 0.01$. Therefore, we can consider that the validity structure of the "Anhui Huibao" survey questionnaire is good, and the validity of the data is good.

2.3. Purchase Intention under Different Demographic Characteristics

Overall, there are 238 respondents who have a willingness to purchase Anhui Huibao, and 334 respondents who do not have a willingness to purchase. Respondents with purchasing intentions are slightly lower than those without.

2.3.1. Cross Analysis of Gender and Purchase Intention

Cross analysis was conducted on gender and purchase intention, and the Sig value between the two variables was greater than 0.05, indicating that gender is not correlated with purchase intention.

Table 4. Cross analysis of gender and purchase intention

		Gender(Digit/Percentage)	
		Man	Woman
Willingness to buy	Yes	107(39.05)	131(43.96)
	No	167(60.95)	167(56.04)
Chi-square test	χ^2	1.416	
	df	1	
	Sig.(Bilateral)	0.234	

2.3.2. Cross Analysis of Age and Purchase Intention

Cross analysis was conducted on age and purchase intention, and the Sig. value of the two variables was less than 0.05, indicating a correlation between the two variables.

Table 5. Cross analysis of age and purchase intention

		Age(Digit/Percentage)				
		Under 25	26-35	36-45	46-55	More than 56
Willingness to buy	Yes	12(30.77)	99(42.86)	51(43.97)	57(43.18)	19(35.19)
	No	27(69.23)	132(57.14)	65(56.03)	75(56.82)	35(64.81)
Chi-square test	χ^2	3.351				
	df	4				
	Sig.(Bilateral)	0.015				

2.3.3. Cross Analysis of Educational Background and Purchase Intention

Table 6. Cross analysis of education and purchase intention

		Educational qualifications (numeric/percentage.)			
		Junior high school and below	Senior high school	Bachelor degree	Postgraduate and above
Willingness to buy	Yes	33(43.42)	58(39.46)	124(44.93)	23(31.51)
	No	43(56.58)	89(60.54)	152(55.07)	50(68.49)
Chi-square test	χ^2	4.701			
	df	3			
	Sig.(Bilateral)	0.195			

Cross analysis was conducted on the variables of education and purchase intention. The Sig. value between education and purchase intention was greater than 0.05, indicating no correlation between education and purchase intention.

2.3.4. Cross Analysis of Annual Income and Purchase Intention

After conducting a cross analysis of annual income and purchase intention, the Sig. value between the two variables was less than 0.05, indicating a correlation between annual income and purchase intention.

Table 7. Cross analysis of annual income and purchase intention

		Annual Income (Numeric/Percentage)						
		0-5	5-10	10-15	15-20	20-30	30-40	More than 40
Willingness to buy	Yes	15 (31.91)	31 (44.93)	38 (46.91)	78 (45.35)	57 (41.01)	7 (21.21)	12 (38.71)
	No	32 (68.09)	38 (55.07)	43 (53.09)	94 (54.65)	82 (58.99)	26 (78.79)	19 (61.29)
Chi-square test	χ^2	9.838						
	df	6						
	Sig.(Bilateral)	0.032						

3. Analysis of the Influencing Factors on the Purchase Intention of "Anhui Huibao"

3.1. Variable Selection and Model Setting

3.1.1. Dependent Variable

The dependent variable is the willingness of residents in Anhui Province to purchase Anhui Huimin Insurance, with a purchase intention of 1 and no purchase intention of 0.

3.1.2. Statistical Variables

According to Tables 4 and 6, there is no correlation between gender, education level, and purchase intention, so these two variables are not included in the regression analysis.

Table 8. Definition of Statistical Variables

Variable classification	Variable settings	Variable definitions
Individual characteristics	X1:Age	Under25=1;26-35=2;36-45=3;46-55=4;More than 55=5
	X2: Economic level	0-5=1;5-10=2;10-15=3;15-20=4;20-30=5;30-40=6;More than 40=7

3.1.3. Independent Variable

Table 9. Health status

Variable classification	Variable settings	Variable definitions
Health status	X3:Health self-assessment	Very health =1;General health=2;Sub-health=3;Range=4;Poor=5
	X4:Number of hospitalizations in the past two years	0 time=1;1time=2;2times=3;More than 3 times=4
	X5:Annual medical expenditures	Under one thousand yuan=1;1-4 thousand yuan=2;4-10 thousand yuan =3;10-20 thousand yuan =5;More than 20 thousand yuan =5

Analyze the characteristics, health status, insurance awareness, and health habits of Anhui Huimin Insurance. The assignment of each variable is shown in the Table 9-12:

Table 10. Characteristics of "Anhui Huibao"

Variable classification	Variable settings	Variable definitions
The characteristics of "Anhui Huibao"	X6:There is no age limit	Care naught for=1;Average attraction=2;Hard to say=3;More attractive=4; Very attractive=5
	X7:No health notification is required	Care naught for=1;Average attraction=2;Hard to say=3;More attractive=4; Very attractive=5
	X8:Government endorsements	Distrustful=1;Less trusting=2;Hard to say=3;More trust=4;Trust a lot=5

Table 11. Insurance Awareness

Variable classification	Variable settings	Variable definitions
Insurance awareness	X9: Critical illness treatment costs	0-5=1;5-10=2;10-20=3;20-30=4;More than 30=5
	X10: The amount of medical insurance coverage purchased	0-5=1;5-10=2;10-20=3;20-30=4;More than 30=5

Table 12.Healthy habits

Variable classification	Variable settings	Variable definitions
Healthy habits	X11:Frequency of drinking	More than 3 times a week=1,1-3times a week=2,1-3 times a month =3,No drinking habit=4
	X12:Frequency of smoking	Never smoked=1;Each less than 5=2;1-5 sticks a day=3;More than 5 sticks a day=4
	X13:Number of physical examinations in the past two years	0 time=1;1time=2;2times=3;More than 3 times=4

3.2. Model Validation

According to Table 13, the three significance test values of the model coefficient comprehensive test are all less than 0.05, indicating that the model has statistical significance.

Table 13. Comprehensive Test Table for Model Coefficients

		χ^2	df	Sig.
Step 1	Step	42.785	24	.011
	block	42.785	24	.011
	model	42.785	24	.011

According to statistical theory, the closer the Cox & Snell R-squared and Nagelkerke R-squared values are to 1, the better the fitting effect of the model. According to Table 14, the Cox & Snell R-squared and Nagelkerke R-squared values are 0.721 and 0.872, respectively, indicating that the fitting effect of the equation is relatively ideal.

Table 14. Model Summary Table

Step	-2 Log-likelihood value	Cox & Snell R ²	Nagelkerke R ²
1	733.987a	.721	.872

The Hosmer and Lameshow tests are used to test the closeness between the expected observation frequency and the actual observation frequency. According to Table 20, the Sig. of the regression model is 0.665, which is much greater than 0.05, indicating a good fit of the model.

Table 15. Hosmer and Lemeshow tests

Step	χ^2	df	Sig.
1	5.837	8	.665

According to Table 16, the accuracy of the regression model fitting is 90.6%, with good fitting and high accuracy.

Table 16. Classification Table

		Predicted value		Accuracy
		0	1	
True value	0	293	20	94.3%
	1	34	225	89.0%
Summary				90.6%

3.3. Regression Results

(1) Economic level. At a confidence level of 0.05, there is a significant negative correlation between annual income level and the dependent variable. For people with lower incomes, they are usually more susceptible to the uncertainty, risks, and unexpected injuries in their lives, as they may lack savings or other financial security measures to cope with unexpected situations. Therefore, they are more willing to purchase inclusive insurance in order to obtain a certain degree of economic protection in case of unexpected risks. For high-income individuals, "Anhui Huibao" may be a form of "Jifen commodity". Although it has great universality, the level of protection provided by "Anhui Huibao" is still relatively low.

(2) The number of hospitalizations in the past two years. At a confidence level of 0.05, there is a significant positive correlation between the number of hospitalizations in the past two years and the willingness to purchase welfare insurance. Firstly, individuals or family members who have experienced multiple hospitalizations may increase their perception of health risks. This risk perception often leads people to be more inclined to purchase insurance to reduce the potential burden of future medical expenses. Secondly, multiple hospitalizations can result in higher medical expenses, which can be a significant economic burden for ordinary families. Therefore, in order to avoid potential economic pressure in the future, individuals or families with multiple hospitalization experiences may be more willing to purchase insurance, especially health insurance products that provide reimbursement of hospitalization expenses.

(3) Age unrestricted attractiveness. At a confidence level of 0.05, there is a significant negative correlation between age unrestricted and purchase intention. With the intensification of social aging, the proportion of the elderly population is increasing, and their demand for health insurance is becoming more urgent. Health insurance products that do not limit age can cover a wider population, including high-risk elderly groups, which helps to increase overall insurance participation.

Table 17. Regression Results Table

	B	S.E.	Wals	df	Sig.	EXP(B)
X1	.025	.083	.089	1	.765	1.025
X2	-.077	.059	1.674	1	.006	.926
X3			1.424	4	.840	
X3(1)	.193	.411	.220	1	.639	1.213
X3(2)	.352	.429	.673	1	.412	1.422
X3(3)	.077	.590	.017	1	.896	1.080
X3(4)	.129	.630	.042	1	.838	1.138
X4	.262	.120	4.758	1	.029	.770
X5	.069	.070	.997	1	.318	1.072
X6			4.310	3	.030	
X6(1)	-.542	.312	3.016	1	.082	.582
X6(2)	-.654	.323	4.103	1	.043	.520
X6(3)	-.508	.380	1.788	1	.181	.602
X6(4)	-.514	.334	2.709	1	.092	.654
X7			4.970	3	.174	
X7(1)	.662	.328	4.069	1	.044	1.939
X7(2)	.688	.341	4.068	1	.044	1.990
X7(3)	.749	.398	3.532	1	.060	2.114
X7(4)	.689	.342	3.353	1	.045	2.101
X8			4.866	3	.182	
X8(1)	.314	.349	.807	1	.369	1.368
X8(2)	.282	.356	.627	1	.429	1.326
X8(3)	-.301	.411	.536	1	.464	.740
X8(4)	.307	.432	.564	1	.435	.862
X9	.081	.084	.938	1	.003	1.085
X10	-.108	.120	.821	1	.365	.897
X11	.251	.219	1.317	1	.251	1.285
X12	.034	.113	.093	1	.761	1.035
X13	.321	.245	.795	1	.691	1.235

(4) Cognition of the cost of treating major diseases. At a confidence level of 0.05, respondents have a significant positive correlation between their perception of major diseases and their willingness to purchase. If consumers are aware of the high incidence rate and potential economic impact of major diseases, they may be more inclined to purchase commercial health insurance to mitigate these risks. The perception of major diseases among respondents can affect their demand for insurance. If consumers recognize the high medical costs that major diseases may bring, they may be more willing to purchase commercial health insurance to obtain better medical services and economic security.

4. Conclusion and Suggestions

4.1. Conclusion

(1) The potential demand for "Anhui Huibao" is high, but the effective demand is low. According to the results of the questionnaire data, respondents generally have a high level of insurance awareness, disease awareness, and risk awareness. Therefore, after a preliminary understanding of Anhui Huibao, more than 40% of respondents have a willingness to purchase it. However, based on the number of insured individuals in Anhui Huibao in 2022, the actual number of insured individuals is less than 5% of the number of insured individuals in Anhui Province's basic medical insurance. The potential demand for "Anhui Huibao" far exceeds the effective demand.

(2) The inclusiveness and level of protection of "Anhui Huibao" are still unbalanced. According to the results of regression analysis, there is a significant negative correlation between the purchase intention of "Anhui Huibao" and the annual income level of the respondents. The inclusiveness of "Anhui Huibao" is a major advantage in its market competition, but for high-income groups, "Anhui Huibao" may exist as a Jifen commodity, and demand will decrease with the decrease of relative prices. These groups are more inclined to obtain higher levels of protection with higher premiums. Considering the reality, for the middle and low-income groups who have the willingness to purchase, their ability to bear risks is lower and they need products with a higher level of protection.

(3) "Anhui Huibao" may face the risk of a "death spiral". Anhui Huibao has a wide age threshold and low requirements for physical condition, which is very attractive to respondents. However, in the insurance market, the increase in sick patients may lead to an increase in the costs borne by healthy policyholders. The negative cycle ultimately leads to the continuous withdrawal of healthy individuals and a further increase in the proportion of sick patients. Anhui Huibao may be at risk of falling into a "death spiral" due to its low insurance threshold.

(4) The "Anhui Hui Insurance" and medical insurance are highly connected." Anhui Huibao" is endorsed by the Anhui Provincial Government. The government has provided a broad platform for the development of Anhui Huibao, and also requires insurance companies to strengthen cooperation and close contact with government departments.

4.2. Suggestions

(1) Top level design. Firstly, the government should clarify its role and positioning in the development of welfare insurance to avoid damaging consumer rights and government credibility. To grasp the proportion of intervention by the medical insurance department, we cannot completely limit inclusive medical insurance to policy based insurance, undermine the enthusiasm of commercial insurance companies, while maintaining market order and clarifying which resources can be shared with enterprises. It is recommended that the medical insurance department adopt a positive attitude, cooperate closely with insurance companies, optimize data integration, and combine the advantages of social insurance and commercial insurance to benefit the majority of people. Secondly, give full play to the regulatory role of government agencies and require insurance companies to provide feasibility reports based on the actual situation of the city where the business is conducted before the product is launched; Product pricing requires an actuarial report and cannot be blindly lowered in order to capture the market; Standardize the behavior of false advertising and impersonation of government names during product release.

(2) Product design. In terms of product design, attention should be paid to active communication and updating of insurance premium preferential policies. Those who claim that the insured has not reached the minimum in the second year, there is no insurance, or a certain premium will be refunded. This can attract consumers to participate in and update insurance,

and also guide consumers not to overuse medical resources to a certain extent. Insurance companies should adopt differentiated product pricing to reduce adverse selection and moral hazard when pricing. In addition, insurance companies can provide value-added services to policyholders, providing them with health checks and guidance, thereby improving their health awareness and reducing payout rates.

(3) Promotion and publicity. In terms of consumer education, third-party companies should take responsibility, establish market reputation, provide training for sales personnel, avoid using non-standard language, and avoid exaggerating publicity, because purchasing welfare insurance is not a one-time solution. When promoting, emphasis should be placed on stimulating residents' awareness of insurance, and the awakening of insurance awareness undoubtedly provides an important cornerstone for the development of commercial health insurance.

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