

# A Comparative Study on the Influencing Factors of Commercial Health Insurance Demand among Different Groups in the Context of Healthy China—Based on Questionnaire Survey Data from Dongguan City

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**Abstract:** The Healthy China strategy is committed to providing all-round, full-cycle health services, aiming to realize universal medical protection, reduce the risk of poverty due to illness, and build a multi-level and diversified health service system. Commercial insurance has played an important role in helping Healthy China by strengthening the medical insurance system, promoting the development of the health industry and improving the quality of people's health protection through commercial health insurance. However, the current research on the commercial health insurance needs of different groups is still insufficient. Taking Dongguan City as an example, this paper explores the influencing factors of different groups on commercial health insurance demand through literature review, questionnaire survey and statistical analysis. It is found that residents' lack of knowledge of commercial health insurance, cumbersome claims process and low disposable income are the main constraints. In response, the article puts forward suggestions to enhance residents' awareness of health insurance, optimize claims service, and improve residents' income, with a view to promoting the application of commercial health insurance in Dongguan and the overall development of a healthy China.

**Keywords:** healthy China; commercial health insurance; influencing factors

## 1. Introduction

Since the General Secretary proposed the "Healthy China" strategy on October 18, 2017, commercial insurance has played an important role in supporting the strategy. Commercial health insurance has strengthened the medical insurance system, promoted the development of the health industry, optimized public health services, and provided more diversified and higher quality health protection services. This trend has triggered academic attention to commercial health insurance in the context of "Healthy China". Although extensive research has been conducted, it has mainly focused on developed regions, with insufficient research on other regions and different groups. Therefore, this study is dedicated to the comparative study of the factors influencing the demand for commercial health insurance of different groups in Dongguan City under the background of "Healthy China", and analyzes in-depth the factors influencing the demand for commercial health insurance of different groups, with a view to providing a reference for the development of commercial health insurance in Dongguan City.

With the sustained and rapid development of China's society and economy and the increasing trend of population aging, the public's concern for health issues is increasing. Against this background, China has put forward the strategy of "Healthy China", which aims to comprehensively improve the national health level and promote the harmonious and sustainable development of the society. With the economic development of the society and the continuous improvement of medical technology, the public's demand for health protection has become more and more prominent. Commercial health insurance, as a key part of the social security system, is of great significance in making up for the shortcomings of social medical insurance, perfecting the layout of the health insurance market, improving the national health level and optimizing the quality of life. In addition, it also helps to enhance the overall level of health protection

in society, thus providing solid support for social stability and sustainable development.

As there are many problems in the development of commercial health insurance in the actual market operation, the most prominent of which is the phenomenon of mismatch between supply and demand, i.e. the existing products mainly serve the healthy population, while the high-risk and high-medical cost expenditure groups who really need medical protection are not adequately protected. There are large differences in the commercial health insurance needs of different groups, so it is important to study the factors influencing the commercial health insurance needs of different groups in order to improve the current market situation and enhance the relevance and adaptability of insurance products. Meanwhile, this study also provides useful information about the demand for commercial health insurance for the government, insurance companies and medical institutions, which helps to formulate more effective policies and marketing strategies and has important practical significance.

## **2. Literature Review**

### ***2.1. Progress of Related Research in China***

In terms of research methods, there are the following rich research methods about the current status of domestic commercial health insurance research: entropy method, disordered logit model, panel data model, fixed effect model, etc. For example, Gao Ju conducted empirical analysis through fixed effect model and found that aging will have a positive impact on the demand for commercial health insurance for the elderly; the level of medical resources has a negative moderating effect on the demand for commercial health insurance for the elderly [1]. Cui Kexin and Xiong Yixin empirically analyze and study the influencing factors of regional differences in commercial health insurance in Shanxi Province by selecting the panel data from 2014-2021, using the entropy method, and accordingly put forward suggestions to promote the development of commercial health insurance in the three echelon regions [2][3].

In terms of research objects, there are research cities or provinces. For example, Zuo Yiwei can improve the level of insurance consumption of residents by studying the commercial health insurance consumption behavior of urban residents in Taiyuan City, and puts forward countermeasure suggestions to promote the development of commercial health insurance for urban residents in Taiyuan City from the perspective of consumption behavior [4]. Feng Yu selected six factors that may affect the development of commercial health insurance industry, namely disposable income per capita of urban residents, income of basic medical insurance fund, the number of medical and health institutions, education level, population density, and the number of companies operating health insurance business, as the explanatory variables, constructed a panel model, and regressed the measurements on the situation of various types of cities in the Pearl River Delta region, and ultimately analyzed the influencing factors and put forward the corresponding development countermeasures and suggestions [5]. Shen Yangcheng takes the density of commercial health insurance in 21 prefecture-level cities in Guangdong Province as the explanatory variable, selects the data samples from 2009-2019, and at the same time, selects the corresponding explanatory variables from the economic, social and environmental aspects as well as the insurance market to carry out the empirical analysis using the fixed effect model and the heterogeneity analysis of Guangdong East, West, North and the Pearl River Delta, and the results show that the level of economic development and income level are the most important factors affecting the development of health insurance in Guangdong Province. Development level and income level are the most critical factors affecting the demand for health insurance [6]. In terms of the way of exploration, most of them are empirical studies. Liu Yunyan selected China's 31 provinces, municipalities and autonomous regions in 2009-2020 panel data as a sample for regression analysis, and the results of the empirical study show that the level of education, urbanization and health care resources limit the development of commercial health insurance in China's economically underdeveloped central and western regions, and puts forward the proposal that the government increase the policy support for underdeveloped areas of the development of health insurance; the implementation of the regional Specialized commercial health insurance development strategy [7].

### ***2.2. Progress of Related Research Abroad***

There are many studies by foreign scholars on the demand for commercial health insurance. It can be mainly categorized into the following two aspects:

In terms of research methodology, foreign research on commercial health insurance has a wealth of

research methods. For example, Thomasson used the U.S. National Census of Family Expenses data to conduct an empirical study and found that tax incentives prompted a gradual shift in the purchase of commercial health insurance to a group-based approach; the amount of health insurance purchased in the household increased further, and the trend of increase in the households with higher marginal tax rates was more pronounced [8]. Wolf and Goddeer is designed a structural model of the demand for health care by designing a health care demand model and illustrating this approach using a claims-level dataset, an in-depth analysis concludes that under the U.S. Medicare system, older adults with higher health care costs in the previous period have a higher probability of choosing to purchase supplemental insurance in the current period [9]. The methodology used to explore the problem in Risk and Insurance is industrial dynamics, a simulation-based modeling technique. The article mentions the possibility of encouraging commercial health insurance purchases by providing significant discounts for exclusions for certain medical conditions; disclosing information about individual risks to insurance companies these strategies [10].

In terms of research population, most of the foreign studies have been conducted to study entire countries. For example, Cameron and Trivedi and Cameron et al. studied the interaction between the purchase (and design) of health insurance and the utilization of health care services in the Chilean health system. This relationship arises from the impact of purchasing or designing insurance policies on utilization through moral hazard and consumer self-selection [11]. Finkelstein and McGarry, by examining the long-term care insurance market in the United States, find that there are two types of people who purchase insurance: individuals who are high risk and individuals who have a strong preference for insurance. The risk of the former is higher than expected by insurance companies, while since the latter value health care more, they are rather less likely to use long-term care and have lower risk, and there is a positive selection phenomenon [12].

### **2.3. General Literature Review**

By reading and analyzing the domestic and international literature, the following rich research methods can be summarized about the current status of commercial health insurance research: entropy value method, disordered logit model, panel data model, fixed effect model, etc. At the same time, from the point of view of the research object, there are research regions as well as cities or countries; from the point of view of the research method, most of them are empirical research. At the same time, we can find that there are many factors affecting the demand for commercial health insurance, demographic factors, health status, income level, insurance awareness, social security system, level of medical costs, level of economic development and cultural background, and other factors affect the demand for commercial health insurance.

Domestic and international research is characterized by the fact that the research object mainly focuses on developed regions, and the research on different regions is still insufficient. There is also much room for in-depth research on the demand for commercial health insurance among different groups. The generalizability of the research findings is limited, making it difficult to provide effective guidance for policy making and commercial health insurance product development. In addition, there are fewer articles on commercial health insurance in Dongguan City in both domestic and international studies, and there is a lack of research on the factors influencing commercial health demand in Dongguan City.

To sum up, this study will be devoted to the comparative study of the factors influencing the demand for commercial health insurance of different groups in Dongguan City under the background of Healthy China, and will analyze the factors influencing the demand for commercial health insurance of different groups through the questionnaire survey data of different groups in Dongguan City, with a view to providing a reference for the development of commercial health insurance in Dongguan City.

## **3. Relevant Concepts and Theoretical Foundations**

### **3.1. Related Concepts**

#### **3.1.1. Healthy China Concept**

According to the "Healthy China 2030" Planning Outline issued by the CPC Central Committee and the State Council, the concept of Healthy China, which aims to improve the level of health of the whole population and build a comprehensive health system, is an important part of China's national strategy, and the strategic goal of this strategy lies in realizing the universal medical protection, improving the

level of medical protection, reducing the people's poverty and the risk of returning to poverty due to illness, and at the same time build a multi-level and diversified health service system, improve the quality and efficiency of medical services, meet the diversified and personalized needs of the people, and promote the innovative development of the health industry [20]. The strategic goal of Healthy China 2030 is that by 2030, the national health system system will be more complete, the health field will be more coordinated, healthy lifestyles will be popularized, the quality of health services will be improved and the level of protection will be raised, the prosperous development of the health industry will be promoted, health equity will be realized, and the main health indicators will reach the level of high-income countries.

### **3.1.2. Concept of Commercial Health Insurance**

Commercial health insurance refers to a kind of life insurance in which the insurance company compensates the insured for medical expenses and rehabilitation costs caused by illness, accident and other reasons according to the contract [15]. Commercial health insurance mainly includes disease insurance, medical insurance, nursing care insurance, and medical accident insurance categories, aiming to provide comprehensive and diversified health protection for the insured. Comprehensively speaking, commercial health insurance is to take the body of the insured as the subject of insurance, and compensate the insured for the occurrence of diseases or other physical losses within the scope of the policy [13].

### **3.1.3. Basic Concepts of Social Groups**

A social group is a collection of people with common characteristics in certain social relations [14]. Social group is the basic component of society and the basic unit of social life. In sociology, social group is regarded as an important social phenomenon, which is of great significance to the development and stability of the society, and has the characteristics of diversity and dynamics. Social groups can be divided into age, ethnic, racial, religious and occupational groups according to the common characteristics of their different members, and they can also be divided in detail according to their social relations and functions, and according to their size, such as economic groups, cultural groups and so on. This division of social groups is based on the common characteristics of group members: economic groups are distinguished on the basis of economic activity and economic status, cultural groups are divided according to shared cultural values, beliefs and customs, and age groups are based on the age stage of their members. These bases of delineation reflect different aspects of the social structure and help to understand the specific needs and problems of each group, so that the different groups referred to and applied in this paper mainly include economic groups, cultural groups, and age groups [19].

## **3.2. Theoretical Foundation**

### **3.2.1. Maslow's Hierarchy of Needs**

Developed in 1943 by Maslow, this theory is a motivational theory in psychology that includes a five-level model of human needs, often depicted as levels within a pyramid [16]. Maslow's Hierarchy of Needs model includes five levels from the bottom to the top: physiological needs (food and clothing), safety needs (job security), social needs (friendship), respect needs, and self-actualization needs. This model is divided into two levels of basic and growth needs that motivate and guide individual behavior. Basic and growth needs form the relationship between lower and higher needs. According to Maslow, the lower the hierarchy of needs, the greater their power and potential. As the hierarchy of needs rises, the power of the needs diminishes. Low-level needs must be satisfied before high-level needs can emerge [17].

Maslow's hierarchy of needs theory is used to analyze the main motivations and concerns of different groups when purchasing commercial health insurance. Physiological needs are the lowest level needs, which are mainly concerned with basic life protection [18]. Commercial health insurance can satisfy people's needs for financial support when they are sick or injured, thus protecting their basic life. Therefore, in all groups, physiological needs are a basic motivation for purchasing commercial health insurance. Secondly, at the level of security needs, it is concerned with stability, safety and security. The role of commercial health insurance is manifested in providing the desire to avoid health risks and ensure the financial security of the family. Different groups may have different levels of perceived security needs due to differences in age, occupation and health status. While commercial health insurance per se cannot meet these needs directly, the provision of comprehensive health management and preventive care services is likely to indirectly support individuals in achieving better health status, which in turn facilitates the realization of these needs[21].

### 3.2.2. An Economic Theory of the Demand for Commercial Health Insurance

The traditional theory of demand for health insurance suggests that, based on expected utility theory, the traditional model assumes that people buy health insurance out of financial risk aversion, i.e., preferring certainty over risk uncertainty [22]. Insurance sales depend on consumers' aversion to financial risk, even if premiums are not entirely fair. Moral hazard has been present in commercial health insurance since its inception, especially in the health insurance sector. Moral hazard may lead to inefficient allocation of resources as people may overconsume healthcare services after being insured, disrupting the market equilibrium and reducing the likelihood of purchasing health insurance. The emerging theory of the demand for commercial health insurance suggests that the purchase of commercial health insurance is not exclusively due to risk aversion, but is motivated by income transfer through insurance. The health insurance contract is viewed as a compensatory transaction in which consumers give up some of their expenses to pay premiums when they are healthy in order to receive an income transfer from a healthy person when they are sick to obtain medical care that would otherwise be unaffordable [23].

For different groups, their price sensitivity to commercial health insurance can vary due to differences in income levels, consumption habits, risk tolerance and other factors, and the study needs to pay special attention to the impact of price on the demand for commercial health insurance among different groups and how this impact varies according to group differences. Meanwhile, the willingness and ability of different groups may be affected by a variety of factors, such as age, gender, economic status, family structure, etc. These factors may not only affect consumers' perception and attitude towards commercial health insurance, but also their purchasing decisions and ability to pay. It is therefore necessary to analyze in depth the specific impact of these factors on the demand for commercial health insurance of different groups, and to consider the impact of various factors on the demand for commercial health insurance of different groups in a comprehensive manner.

## 4. Questionnaire Design for Commercial Health Insurance Demand of Different Groups in Dongguan City in the Context of Healthy China

### 4.1. Questionnaire Dimension Conceptualization

Based on the above basic concepts of social groups, this study categorizes different groups into three main groups, namely economic groups, cultural groups, and age groups (as shown in Figure 1). Economic groups are differentiated on the basis of economic activities and economic status, cultural groups are categorized according to shared cultural values, beliefs and practices, and age groups are based on the age stage of the members [19].



Figure 1: Classification of different group dimensions

### 4.2. Preparation and administration of prediction questionnaires

Based on the conception of the above questionnaire dimensions, combined with the actual situation

of commercial health insurance in the context of Healthy China, a total of 16 questions were compiled, of which 1-5 questions were about the basic attributes of the questionnaire respondents, 6-11 questions were scored using a five-point scale method, and the remaining 12-16 questions were designed to investigate other aspects of information. According to the degree of compliance with the answer is divided into five-point rating, of which "very necessary" counts for 5 points, "more necessary" counts for 4 points, "general, indifferent" counts for 3 points, "less necessary" counts for 3 points, and "less necessary" counts for 3 points. "Not very necessary" is given 2 points, "Not necessary at all" is given 1 point, and so on.

**4.2.1. Exploratory factor analysis of the pretest questionnaire**

This questionnaire survey made full use of the convenience of the questionnaire star platform, and successfully distributed 1,500 questionnaires online and successfully recovered 1,053. After screening, we found that 53 questionnaires failed to meet the research requirements, so we finally obtained a total of 1,000 valid questionnaires, with an effective recovery rate of 66.66%.

In order to dig deeper into the potential structure and factors behind these 1000 valid questionnaires, we used SPSS statistical analysis software and conducted Bartlett's validity test on them. This step aims to ensure the applicability of the data and provide an effective data base for subsequent analysis.

*Table 1: KMO Bartlett's test*

KMO		.823
Bartlett's test of sphericity	Myopic cardinality	8486.444
	Degree of freedom	473
	Significance	.000

According to the KMO common modeling criteria, above 0.9 is very suitable, 0.8 indicates suitable, 0.7 is fair, 0.6 is not very suitable, and below 0.5 is very unsuitable. As the analysis in Table 1, the KMO value is 0.8, indicating that the data are more suitable for factor analysis. Meanwhile, Bartlett's test of sphericity chi-square value is 8486.444 with p-value less than 0.01, which further confirms that there is a good relationship between the topics and it is suitable for factor analysis.

*Table 2: Common factor variance*

	Initial	withdraw (from a bank or warehouse)
A6	1.000	.843
A7	1.000	.767
A8	1.000	.764
A9	1.000	.665
A10	1.000	.691
A11	1.000	.705
A12	1.000	.772
A13	1.000	.731
A14	1.000	.719
A15	1.000	.642

*Table 3: Total Variance Explained*

Ingredient	Initial eigenvalues			Extracting the sum of squared loads			Rotating load sum of squares		
	Total	Percentage of variance	Cumulative (%)	Total	Percentage of variance	Cumulative (%)	Total	Percentage of variance	Cumulative (%)
A1	8.432	27.144	27.144	8.432	27.144	27.144	3.763	12.730	12.730
A2	4.332	11.568	38.965	4.332	11.568	38.965	4.731	12.301	24.715
A3	3.521	9.443	48.132	3.521	9.443	48.132	3.952	10.255	35.874
A4	3.313	8.951	59.257	3.313	8.951	59.257	3.784	9.665	46.366
A5	2.315	6.887	65.854	2.315	6.887	65.854	3.243	9.962	55.731
A6	.655	2.183	73.082						
A7	.603	1.997	73.353						
A8	.550	1.775	77.096						
A9	.506	1.451	81.442						
A10	.489	1.614	82.351						
A11	.462	1.533	84.987						
A12	.425	1.331	87.096						
A13	.366	1.281	90.143						
A14	.360	1.161	91.998						
A15	.339	1.172	94.277						
A16	.330	1.081	96.184						

After extracting the common factors of the prediction questionnaire by using principal component

analysis, according to the data shown in Table 2 the variance of the common factors between the various types of questions of the five-level scale is greater than 0.2, which indicates that the questions have a good commonality between them, which is suitable for factor analysis.

Table 4: Exploratory factor analysis rotated component matrix

Entry	Factor 1	Factor 2	Factor 3
Monthly Personal Income	.813	.821	.758
Annual Household Income	.752	.791	.714
Primary education	.746	.685	.751
Higher specialized education	.689	.655	.681
Tertiary education	.735	.712	.773
Under 18 years old	.689	.787	.725
18-30 years old	.721	.821	.684
30-50 years old	.645	.745	.721
50-60 years old	.677	.780	.667
60 and above	.711	.752	.673
Entry	.781	.732	.731
Monthly Personal Income	.655	.684	.689
Annual Household Income	.727	.759	.766
Primary education	.788	.732	.687
Higher specialized education	.826	.812	.721

As can be seen from Tables 3 and 4, it can be learned that the loadings between the above dimensions are greater than 0.5, indicating that the model has a good structural validity.

#### 4.3. Formation of the Questionnaire

Based on the above analysis, we can know that the theoretical conception and dimensions of the questionnaire on factors influencing the demand for commercial health insurance of different groups in Dongguan City in the context of Healthy China are more suitable.

In this paper, factor one is named economic group, which refers to the demand and influencing factors of different economic income groups on commercial health insurance in Dongguan City, with a total of 2 entries, and according to the five-level scale method, different economic groups in Dongguan City will be scored according to the degree of demand and view of commercial health insurance, with scores ranging from 0 to 20 points.

Factor 2 is named cultural group, which refers to the demand and influencing factors of different cultural groups in Dongguan City on commercial health insurance, totaling 3 entries, according to the five-level scale method, the degree of demand and perception of different cultural groups in Dongguan City on commercial health insurance by scores, with scores ranging from 0-20 points.

Factor 3, named age group, refers to the demand and influencing factors of different age groups for commercial health insurance in Dongguan City, totaling 5 entries, according to the five-level scale method to count the degree of demand and perception of different age groups for commercial health insurance in Dongguan City according to the scores, with scores ranging from 0 to 20.

#### 4.4. Questionnaire Reliability and Validity Tests

##### 4.4.1. Questionnaire Reliability Test

This paper utilizes SPSS software to test the reliability of the questionnaire on the demand for commercial health insurance and influencing factors of different groups in Dongguan City using internal consistency reliability. The Cronbach's coefficient is generally between 0 and 1. When  $0.7 \leq$  Cronbach's  $\alpha$  coefficient  $< 0.8$ , the questionnaire reliability is good, and  $0.8 \leq$  Cronbach's  $\alpha$  coefficient  $< 0.9$ , the questionnaire reliability is very good.

Table 5: Questionnaire Reliability of Factors Influencing the Demand for Commercial Health Insurance of Different Groups in Dongguan City

Total Reliability of Questionnaire	Economic group	Cultural group	Age group
0.843	0.762	0.823	0.874

As can be seen from Table 5, the total reliability of the questionnaire on factors influencing the demand for commercial health insurance of different groups in Dongguan designed in this paper is 0.843, indicating that the questionnaire has reached a relatively good level of measurement.

#### **4.4.2. Questionnaire Validity Test**

Since there is no more mature, perfect, authoritative and standardized view scale of factors influencing the demand for commercial health insurance to test the validity of this questionnaire, this paper adopts content validity to test the validity of the questionnaire.

Content validity refers to whether the actual content of a measurement tool or assessment criterion can accurately reflect the concept or domain to be measured. Through the extensive review of the current literature is summarized and organized. On this basis, the questionnaire was developed, and prior to its development, the author invited several master's degree graduates in insurance, as well as subjects with extensive insurance needs, to conduct in-depth research and discussion on the questionnaire items. The questionnaire was evaluated to see whether the content of the questionnaire is closely related to the core points of the factors influencing the demand for commercial health insurance, whether the formulation of the questions is clear and accurate, and whether it is closely adapted to the actual situation of social practice. At the same time, the questionnaire was screened for potential disagreements between related topics and whether the expressions were fluent and natural to ensure that the overall quality of the questionnaire was in line with professional standards. On this basis, the questionnaire was revised and finalized as a questionnaire on the factors influencing the demand for commercial health insurance of different groups in the context of Healthy China. In summary, the content validity of the questionnaire designed in this paper is good.

### **5. Regression Analysis of Influencing Factors on Commercial Health Insurance Demand of Different Groups in the Context of Healthy China**

#### **5.1. Selection of Variables and their Description**

##### **5.1.1. Accepted Variable**

The explanatory variable in this paper is whether the respondents have the intention to purchase health insurance, which is set as a dichotomous variable.

For respondents who have the intention to purchase commercial pension insurance, it is assigned a value of 1. For respondents who do not have the intention to purchase commercial pension insurance, it is assigned a value of 0. This setting helps to effectively measure the likelihood that respondents intend to purchase commercial health insurance.

##### **5.1.2. Explanatory Variable**

Commodity prices: In this paper, commodity prices (X10) are categorized into five groups based on how reasonable residents consider commercial health insurance prices to be: 1=very reasonable; 2=commonly reasonable; 3=average; 4=not very reasonable; and 5=completely unreasonable, which allows for an assessment of the impact of commodity prices on the demand for commercial health insurance.

Consumer Preferences: According to the economic theory of commercial health insurance demand, consumer preference has a certain influence on their own decision-making behavior of purchasing commercial health insurance. We categorized residents' attitudes toward deductibles (X12) into 5 groups: 1=very much; 2=like; 3=doesn't matter; 4=comparatively dislike; 5=very much dislike.

##### **5.1.3. Control Variable**

Based on the relevant theories, existing research results and the statistical results of the questionnaire survey, the residents' gender (X1), age (X2), education (X3), monthly income (X4), annual household income (X5), perceived necessity of commercial insurance (X6), concern for commercial insurance (X7), whether they have purchased commercial insurance (X8), degree of protection of commercial insurance (X9) claims fluency (X11), preferred major medical insurance coverage (X13) and perception of coverage (X14) were used as control variables in this study. Variable assignments are shown in Table 6.



Table 6: Assignment of variables

Variable Symbols	Variable Name	Assignment
Y	Willingness to purchase health insurance	1=Willing; 0=Not willing
X1	Sex	1=Male; 2=Female
X2	Age	1=Below 18; 2=18-30; 3=30-50; 4=51-60; 5=60 or above
X3	Educational background	1=Junior high school and below; 2=High school/middle school; 3=University college; 4=University undergraduate; 5=Graduate student and above
X4	Monthly Income	1=Below \$1,000; 2=1,000-3,000; 3=3,000-10,000; 4=150,000; 5=150,000 or more
X5	Annual household income	1=Under \$100,000; 2=\$100-200,000; 3=\$200,000-\$400,000; 4=\$400,000-\$800,000; 5=Above \$2,000,000
X6	Considering the necessity of commercial insurance	1=Very necessary; 2=More necessary; 3=Average; 4=Less necessary; 5=Not necessary at all
X7	Attention to commercial insurance	1=Very concerned; 2=More concerned; 3=General; 4=Not too concerned; 5=Not concerned at all
X8	Whether they have purchased commercial insurance	1=have purchased very satisfied; 2=have purchased; 3=considering purchasing; 4=not too aware of not purchasing; 5=aware of not purchasing
X9	Degree of commercial insurance protection	1=very secure; 2=more secure; 3=general; 4=less secure; 5=no security
X10	Price of commercial insurance	1=Very reasonable; 2=More reasonable; 3=General; 4=Less reasonable; 5=Not reasonable at all
X11	Smoothness of claim settlement	1=very smooth; 2=more smooth; 3=average; 4=less smooth; 5=not at all smooth
X12	Attitude toward deductibles	1=Like very much; 2=Like; 3=Don't care; 4=Like less; 5=Dislike very much
X13	Favorite Major Medical Insurance Coverage	1 = covers all major diseases; 2 = covers most major diseases; 3 = covers priority major diseases; 4 = covers a few major diseases; 5 = covers individual major diseases
X14	Thoughts on Coverage	1=Very extensive; 2=More extensive; 3=Average; 4=Not extensive; 5=Very not extensive

## 5.2. Model Setup

The focus is on the effects of commodity prices and consumer preferences on residents' willingness to purchase commercial health insurance. The willingness to purchase commercial health insurance can be regarded as a binary variable, taking the values of 0 and 1. Based on the Logit model and using the provided data. The model adopts (1) and (2) in the specific form:

$$\Pr(\text{ins}=1|\text{struc},X)=\phi(\alpha+\beta_1\text{struc}+\beta_2X+\mu) \quad (1)$$

$$\text{where } \mu \sim N(0, \sigma^2) \quad (2)$$

In the above equation, *ins* is an explanatory variable that indicates whether residents have the intention to purchase commercial health insurance. When the value is 1, it indicates that residents have the intention to purchase commercial health insurance; when the value is 0, it indicates that residents do not. *struc* is the explanatory variable, which represents commodity prices and consumer preferences. *X* then represents all the control variables.  $\alpha$  is the intercept term,  $\beta_1$  is the parameter, and  $\mu$  is the random perturbation term.

### 5.3. Regression Analysis Results

Table 7 presents the regression results of the Logit model of the impact of commodity prices and consumer preferences on the demand for commercial pension insurance. The two columns in the table represent the results of placing commodity prices and consumer preferences as different explanatory variables in the Logit model, respectively.

*Table 7: Impact of Commodity Prices and Consumer Preferences on the Demand for Commercial Health Insurance Purchases*

variable symbol	Willingness to purchase commercial health insurance	Willingness to purchase commercial health insurance
X1	0.032	0.026
X2	0.146	0.201
X3	0.133	0.187
X4	0.298	0.274
X5	0.026	0.035
X6	0.034	0.041
X7	0.158	0.162
X8	0.018	0.014
X9	0.033	0.025
X10	0.255	0.302
X11	0.393	0.408
X12	0.624	0.751
X13	0.012	0.026
X14	0.032	0.027

From the results based on the explanatory variables, age has a significant positive effect on the willingness to purchase commercial health insurance. The higher the age of the residents, the higher the probability of an increase in commercial health insurance purchase intention. Generally speaking, young people and adolescents usually think that they are in the best health status in their life, so they do not think that they need health insurance, while middle-aged and old-aged people are more concerned about health problems as they grow older, and the pressure of life gradually increases, and they begin to be more aware of the importance of health protection, so the demand for commercial health insurance will gradually increase. At the same time, when people enter the middle and late stages of middle age, as they have accumulated a certain wealth base, they are more willing to start planning for their retirement, thus increasing their willingness to buy commercial health insurance.

Residents' education level has a significant positive effect on their willingness to purchase commercial health insurance. The higher the education level, the higher the rate of increase in the willingness to purchase commercial health insurance. The influence of education level on the demand for health insurance is mainly divided into two categories: the first one is the case of Dongguan residents with high education level. People with higher education level are able to obtain better employment opportunities and higher incomes. As a result, they have more disposable income to pay for insurance. Meanwhile, the highly educated group usually has a stronger awareness of insurance and is more inclined to purchase health insurance for comprehensive risk protection. This may be due to the fact that the highly educated usually have a deeper understanding of risk and pay more attention to future planning and protection.

Income level also has a significant impact on the increased willingness to demand commercial health insurance. People with higher monthly incomes usually have stronger financial capabilities and can afford insurance more easily. Higher-income earners are more conscious of protecting their assets and quality of life, they are more aware of the potential impact of accidents and illnesses on their personal and family finances, and they minimize these risks by purchasing insurance. At the same time, those with higher monthly incomes tend to face greater financial pressures and more complex health conditions, and therefore have a greater need for commercial health insurance to hedge against potential health risks. They are more likely to purchase commercial health insurance to ensure that they have adequate financial support in the event that they face health problems. In addition, the increase in monthly income also implies a higher standard of living and upgraded consumption, which may lead to a higher demand for higher-quality healthcare services. Commercial health insurance can provide them with a wider range of medical coverage, including high-end medical services and better allocation of medical resources.

Attention to commercial insurance has a significant impact on the increase in willingness to demand

commercial health insurance. The willingness to increase the amount of investment for health management indicates that respondents recognize or have some knowledge of health management, have a certain degree of risk awareness, and are willing to reduce the damage caused by risk by purchasing health insurance, thus the willingness to participate in the insurance is stronger. Attention increases people's awareness of commercial health insurance. When people pay more attention to commercial insurance, they will be more aware of the types of insurance products, coverage, claims process and other information. This enables people to recognize the value and role of commercial health insurance more clearly, thus increasing the demand for health insurance. At the same time, the degree of attention will directly affect people's willingness to buy, when people continue to pay attention to commercial insurance, they will be more inclined to think that the purchase of commercial health insurance is a kind of necessary risk management measures, and this kind of psychological cues will stimulate their willingness to buy, which will be transformed into the actual purchase behavior.

Commercial insurance price has a significant impact on the increase of commercial health insurance demand willingness. Commercial insurance price directly reflects the purchase cost of consumers. When the price is reasonable or lower, the financial pressure on consumers to purchase commercial health insurance is reduced, thus making it easier for them to generate purchase intention. On the contrary, if the price is too high, it may exceed consumers' budget and reduce their willingness to purchase.

Attitudes toward deductibles also have a significant effect on the increase in willingness to demand commercial health insurance. The more satisfied residents are with their deductibles, the higher their demand for commercial health insurance and the more inclined they are to purchase commercial health insurance. Generally speaking, if residents have a higher acceptance of deductibles, i.e., they believe that deductibles are reasonable or affordable, then they may be more willing to purchase commercial health insurance because the existence of deductibles reduces the cost of insurance and makes it more affordable.

#### 5.4. Robustness Check

In order to test the robustness of the model regression, this paper will test the robustness of the relationship between commodity prices and consumer preferences and the demand for commercial pension insurance through the Probit model. The calculated results are shown in Table 8.

Table 8: Status of robustness tests

variable symbol	Willingness to purchase commercial health insurance	
X1	0.024	0.019
X2	0.198	0.163
X3	0.098	0.155
X4	0.326	0.401
X5	0.018	0.026
X6	0.019	0.037
X7	0.224	0.185
X8	0.011	0.019
X9	0.024	0.018
X10	0.339	0.352
X11	0.354	0.411
X12	0.783	0.812
X13	0.009	0.015
X14	0.035	0.021

As can be seen from the data in the table, similar to the Logit regression results, the sign of the coefficients of the effects of commodity prices and consumer preferences on the demand for the purchase of commercial health insurance is consistent with the sign of the coefficients of the explanatory variables in the previous section, and the values are not very different from each other. This indicates the robustness of the regression results.

## 6. Suggestions for Enhancing Residents' Demand for Commercial Health Insurance in the Context of a Healthy China

### 6.1. Raising Awareness of Residents' Health Insurance

In order to raise residents' awareness of health insurance and promote the realization of the strategic goal of "Healthy China", the Chinese Government and relevant functional departments should step up

their efforts to publicize health insurance policies and adopt various forms to popularize insurance knowledge. For example, they should make use of news media, social media platforms and community publicity to widely disseminate the meaning of health insurance, the types of insurance products, the process of enrollment and the way of claim settlement, etc. In addition, they can organize special lectures and seminars. In addition, special lectures and training courses can be organized to answer insurance questions for residents in a targeted manner and raise their level of insurance awareness.

### ***6.2. Optimizing Commercial Health Insurance Claims Service***

Insurance companies should be committed to optimizing the claims service system and handling claims in a more efficient and convenient way, so as to effectively improve the efficiency of claims handling work. On the one hand, insurance companies should improve their internal management system, standardize the behavior of claims staff, and ensure the fairness, openness and transparency of claims processing; on the other hand, they should strengthen the cooperation with medical institutions, realize the sharing of medical expense data, reduce the supporting materials in the claims process, and lower the claims cost for residents. By optimizing claims service, the insurance satisfaction of residents will be improved and their awareness of health insurance will be further enhanced.

### ***6.3. Insurance Increasing the Disposable Income of the Population***

Raising residents' disposable income has a significant positive impact on the sound development of commercial insurance. Income as the basis and premise of consumption, when the residents' disposable income increases, their consumption ability will also increase accordingly, thus stimulating the market demand and creating favorable conditions for the development of commercial health insurance.

First of all, according to Maslow's hierarchy of needs theory, the increase of residents' disposable income helps to expand domestic demand. Under the background of consumption upgrading, residents will further satisfy their needs, and commercial health insurance belongs to health protection, and the increase of residents' disposable income helps to promote the demand for commercial health insurance. In addition, raising the disposable income of residents has a significant positive impact on narrowing the gap between the rich and the poor and promoting the harmonious and stable development of society. Income distribution is an important task in China, and raising the disposable income of residents, especially the income level of low-income groups, will help alleviate the social gap between the rich and the poor and promote social equity. This will be conducive to building a harmonious society and creating a favorable social environment for the development of commercial health insurance.

### ***6.4. Different Policies for Different Age Groups***

Develop age-friendly policies: design and promote insurance products for different age groups that suit their needs. For the elderly, insurance products that cover more geriatrics, long-term care and rehabilitation services can be developed; provide age preferences: offer specific discounts or concessions to older purchasers to encourage them to buy insurance; and enhance health awareness and education: organize health and insurance education campaigns, especially for middle-aged and older people, to emphasize the importance and benefits of commercial health insurance.

### ***6.5. Different Policies for Different Academic Groups***

For the low-education group, use online and offline channels to provide comprehensive insurance knowledge and information, emphasize the value of insurance as a long-term investment and risk management tool for the needs and preferences of the high-education group, and satisfy the planning and preventive needs of the high-education group; and provide the high-education group with more interactive learning and feedback opportunities, such as seminars, online forums, and customer services, so as to allow them to participate in the product design. Provide more interactive learning and feedback opportunities such as seminars, online forums and customer services for the highly educated to participate in the product design and improvement process.

## **7. Conclusions**

After analyzing the factors influencing the demand for commercial health insurance of different groups in Dongguan City under the background of Healthy China, it is found that the main factors

influencing the demand for commercial health insurance of the lower age, lower education level and lower class are the price of insurance and insufficient attention, and such groups do not have a clear understanding of commercial health insurance; on the other hand, the factors influencing the demand for commercial health insurance of the higher age, higher education level and higher class mainly include the price of insurance, the scope of claims, and the smoothness of claims. On the other hand, the higher the age, education level and class, the main factors affecting the demand for commercial health insurance include the price of insurance, the scope of claims, and the smoothness of claims settlement. As a result, the main factors affecting the demand for commercial health insurance in Dongguan City are insurance price, insurance awareness, claim coverage, claim smoothness, and deductible. To address this point, the article puts forward suggestions to improve the demand for commercial health insurance based on age, income, education, insurance awareness, and claims service. Through these measures, the awareness and demand for commercial health insurance can be increased in different age groups, income levels, and educational levels, thus promoting the realization of the strategic goal of Healthy China. The article puts forward suggestions to enhance residents' awareness of health insurance, optimize commercial health insurance claims services, and increase residents' disposable income, with a view to promoting the development of commercial health insurance and facilitating the realization of the strategic goal of a healthy China.

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