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The Impact of Health Risk on Household Risky Financial Asset Allocation is Analyzed Based on CGSS2017 Data

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Abstract: The body mass index (BMI) is an effective measure of human health recommended by the World Health Organization. When it measures whether the body has health risks, the evaluation results are more objective and relevant than the subjective evaluation results of family members' illness, self-measured health level, mental health status, subjective happiness and so on. Therefore, we use the Chinese General Social Survey 2017 years data, using probit model , by controlling the demographic characteristics of the family, wealth, Internet use, out-of-pocket medical expenses, such as variables, and analyses the influence of BMI family involved in the influence of risk investment and holding the proportion of financial assets. The results showed that the BMI had a significant positive correlation with the proportion of households participating in and holding risky financial assets. Moreover, variables such as age, total household income, education level, home ownership and Internet use all showed significant correlations.

Keywords: BMI, household asset allocation, risky financial assets, stock investment

I. Introduction

China's long history and culture have created a unique family structure, family culture and the way of making asset allocation decisions. In China, the family is not only a social unit, but also an independent economic unit. Over the past 40 years and more since reform and opening-up, the disposable income of China's urban and rural residents has increased substantially. According to the China household wealth report 2019, according to Chinese family property 208883 yuan, per capita growth rate is higher than the per capita GDP growth (6.1%), the equity of urban households account for 71.35% of household wealth per capita, the equity of 52.28% of rural households, more than 93% of households have 1 set of housing.However, under the pressure of preventive needs such as medical care, pension and children's education, the financial asset allocation of Chinese households is mainly concentrated in cash, demand deposits and time deposits, accounting for as high as 88%.Factors such as the high proportion of real estate, single structure of financial assets and high precautionary savings have seriously affected the

release of residents' consumption power, leading to weak growth of domestic demand [1]. So the household risk of financial asset allocation behavior influence factor, will help us to understand the household asset allocation structure and characteristics of the micro level, so that the financial policy of the government to be more perfect, the enterprise better financial products, meet the residents family enrich the investment demand, and guide the family through health investment to expand the total household wealth.

This paper summarizes the research results of scholars on the impact of health status on family financial asset allocation and finds that some scholars believe that health status has significant positive or negative effects on family financial asset allocation, while others believe that health status has no significant effects on family financial asset allocation. Since it is not long since scholars began to pay attention to the study of micro families, there are few literatures. Therefore, in order to enrich the research results of household financial asset allocation at the micro level. We use the general social survey data in 2017, in good health index as the proxy variable, studied the Chinese family health risk and risk of financial asset investment decisions of investors behavior, the relationship between the empirical results show that the health risks for the family to participate in the probability of risk of financial investment has significant correlation, and urban and rural areas there is a big difference.

II. Literature review

At present, there are many research results on the effect of health status on household financial asset allocation, mainly focusing on the influence of health status on household financial asset allocation and the influence of family medical care expenditure on household financial asset allocation.

2.1 Health status has a significant impact on household financial asset allocation

Smith (1999) believes that the impact of health shocks on household savings is huge [2].Wu (2001) believes that severe exogenous health shocks have a strong impact on family wealth. Since wives undertake more housework than husbands, health shocks have a more significant impact on wives than on husbands [3].Rosen and Wu(2004) used the data of the Health Retirement Survey in the United States to find that health status has a significant impact on the holding probability and holding proportion of financial assets [4]. Berkowit and Qiu (2006) believe that health shock has different effects on financial assets and non-financial assets, and health deterioration will significantly reduce the total amount of household financial assets, while it is not obvious for non-financial assets [5]. Campbell (2006) believed that poor health would affect the labor income risk through the reduction of life expectancy and future income, thus leading to the reduction of risk assets [6]. Edwards (2008) showed that residents with poor health status and high health risk would choose safer assets [7]. The research results of Cardak, Wilkins show that the uncertainty of labor income and health status have a great impact on the financial asset allocation of Australian residents [8]. Edwards(2010) believed that health risks would reduce the share of asset allocation [9].Fisher, Patti & Anong, Sophia (2013) believe that health status has a significant impact on family saving decisions [10]. The research conclusion of Lei and Zhou (2010) shows that health status has a strong negative correlation with financial asset investment of Chinese urban families. When a family suffers from health shock, residents will shift their assets to safer real estate and productive assets [11].The research results of Chen and Liu (2014) show that the self-rated health status data of urban residents has a significant impact on the asset choice behavior, while the self-rated health data of rural residents is not significant [12].The study of Hu , He , and Zang (2015) shows that health status has different influences on different types of financial assets of urban families, and there are regional differences [13]. Yogo(2016) 's research conclusion shows that age and health status have significant influence on household financial asset allocation at different stages of the life cycle [14].Angrisani and Atella (2016) find that families with poor health status are more likely to pay high

medical expenses in the future and hold fewer shares, but social medical insurance can make up this gap, especially for those families without commercial health insurance [15].

2.2 Health status has no significant influence on household financial asset allocation

Fan and Zhao (2009) using cross-section data for empirical analysis, found the relationship between the asset portfolio health and family, but the use of panel data fixed effects model estimation, the relationship is no longer significant, therefore, they think that there is no causal relationship between health and household asset allocation behavior, significance is caused by the heterogeneity of individual or family [16]. He , Shi , and Zhou (2009) also believed that health status had no significant influence on residents' investment probability of risky financial assets [17]. Wu and Rong et al. (2011) used the model of asset participation and asset allocation to point out that investors' health status did not affect their decision to participate in the stock market or risky asset market, but had a significant impact on the proportion of households holding stocks or risky assets [18]. Bogan V L, Fertig A R. (2013) analyzed the roles of mental health and cognitive function in family portfolio selection decisions, and found that mental health is significantly negatively correlated with family financial asset allocation [19]. Silvia, Noemi p. b. Loriana p. (2014) questioned the predecessors about the impact of health for household financial asset investment research, review the data of these studies, found that only bad self health report will be a negative impact on investment, however, chronic diseases, the limitations of daily life activities, mental health, and other health indicators have no effect on the financial asset investment decision [20]. Wu (2015) explored the impact of medical insurance, risk preference and their interaction effects on household investment in risky financial assets from a micro perspective, and found that medical insurance only significantly improved the possibility and participation degree of risk-neutral and risk-preference households in the stock market [21].

2.3 Literature evaluation

From the above research results, we can see that scholars use the survey data of different countries or regions and use different methods to reach two different conclusions: the existence and non-existence of health status on household financial asset allocation. Why the big difference? We found that in addition to differences in the survey data themselves, differences in health measures were also an important factor. At present, the commonly used measures of individual or family health status by scholars mainly include subjective indicators such as self-rated physical health and self-rated mental health, as well as objective indicators such as daily living ability, incidence of disease and medical care expenditure. Because human is a complex individual, the self-evaluation of the health status is bound to have strong subjectivity, can not objectively reflect the real health status of the individual. Therefore, we propose the following hypothesis:

Hypothesis 1: Body mass index has a significant effect on the probability of participation in risky financial asset investment.

Hypothesis 2: The influence of body mass index on financial investment of urban and rural households is significantly different.

III. Data source, variable selection and model setting

3.1 Model Setting

This paper focuses on the impact of BMI on whether families choose to participate in risky financial market investment. Since participation in the financial market is a binary choice of dummy variables, such as 0,1 variable; That is, 0 represents non-participation and 1 represents participation. The participation rate of the capital market can be explained by the value frequency of the dependent variable. So the problem is a discrete choice problem. At the same time, based on the characteristics of CGSS2017

data, we believe that the residual items obey normal distribution, so the Probit model is selected to meet the needs of the problem. The model function expression is:

$$\text{risk}\_A_i = \beta X_i + \varepsilon_i \qquad (i = 1, \cdots, n) \qquad (1)$$

In this formula, risk_A_i Is the household risky financial asset, is the explained variable, X_iIt's the explanatory variable, ε_iIs the disturbance term, and β is the parameter to be estimated.

In order to make the risk_A_i is always between [0,1]. Given X, consider the two-point probabilities of Risk_a:

$$\begin{cases} P(\text{risk}\_A = 1 \mid X) = F(X, \beta) \\ P(\text{risk}\_A = 0 \mid X) = 1 - F(X, \beta) \end{cases} \qquad (2)$$

Since F (X, β) is the standard positive cumulative distribution function, it can be expressed as:

$$P(\text{risk}\_A = 1 \mid X) = F(X, \beta) = \phi(X'\beta) = \int_{-\infty}^{X'\beta} \varphi(t)dt \qquad (3)$$

3.2 Variable Selection

3.2.1 Explained variables

The core of this paper is the allocation of risky financial assets of households.According to the Survey results of the Chinese General Social Survey (CGSS), the financial asset allocation of Chinese households mainly focuses on stock investment, fund investment and bond investment, while futures investment, warrants investment and foreign exchange investment are relatively small.Therefore, we take "whether we participate in the stock market", "whether we participate in the fund market" and "whether we participate in the bond market" as explanatory variables, which are respectively stocks, funds and bonds.When a household owns at least one risky financial asset, it is considered to be involved in risky finance, with a value of 1; otherwise, the value is 0.

3.2.2 Explanatory variables

Estimating individual health risks is a difficult task.Some scholars have studied the illness of family members, self-measured health level, mental health status, family age structure, subjective well-being and other aspects.However, the illness of family members can only reflect the health status of the family from the side, but not directly reflect the health status of the investigated subjects. The self-measured health level, mental health status and subjective well-being of the respondents are highly subjective, and there is a certain gap between them and the real health status. Family age structure alone is not enough to reflect the differences in individual health status.

Therefore, according to the BMI model recommended by the World Health Organization (WHO), this paper calculated the BMI value of the investigated subjects by using the height and weight data of the respondents in CGSS2017.According to the Asian standard of BMI proposed by WHO, a BMI<18.5 is considered underweight and has a low risk of causing other diseases. 18.5≤BMI≤22.9 is normal, and the risk of other diseases is general; 23≤BMI≤24.9 is overweight, which increases the risk of other diseases; 25≤BMI≤29.9 is considered as obesity, with a moderately increased risk of other diseases; BMI≥30 is considered to be severely obese, which significantly increases the risk of other diseases.A BMI greater than or equal to 40 is considered to be extremely obese, with a very serious increased risk of developing other diseases.Therefore, we took the BMI value of the respondent as the explanatory variable and denoted it as BMI.

3.2.3 Control variables

Reference to the practice of other researchers, we are going to gender, age, highest education, marital status, family size, family income, whether to own property, whether to participate in urban and rural medical insurance, whether to take part in commercial medical insurance, urban and rural location data, population characteristics, such as, Internet usage and extra health care costs data as control variables.

Table 1 variables set 1

Variables type	Variables means	Variables symbol	Variables value
Explained variable	"Whether you participate in the stock market" "Whether to participate in the fund market" "Whether to participate in the bond market"	*stocks* *funds* *bonds*	*Yes = 1, No = 0*
Explanatory variables	BMI	*bmi*	*BMI=height(m) /weight2(kg)*
Control variables	gender	*gender*	*Male=1,female=0*
	age	*age*	*age*
	Age squared	*age2*	*age squared*
	The highest record of formal schooling	*edu*	*1 to 14, from low to high in 14 grades*
	Marital status	*marry*	*Yes = 1, No = 0*
	Family size	*familysize*	*1~n*
	Total household income	*income*	*0 ~ 9999999*
	Total household income squared	*income2*	*income squared*
	Owning property or not	*house*	*Yes = 1, No = 0*
	Whether to attend urban and rural medical insurance	*med-insurance*	*Yes = 1, No = 0*
	Out-of-pocket medical expenses	*medicalpay*	*0 ~ 9999999*
	Internet usage	*internet*	*Yes = 1, No = 2*
	Urban and rural areas	*isurban*	*Urban = 1, rural = 2*

3.3 Data source and processing

The Chinese General Social Survey is the first nationwide, comprehensive and continuous large-scale Social Survey project in China. Since 2003, the survey team has regularly and systematically conducted continuous cross-sectional data surveys on more than 10,000 households in mainland China, forming data materials that reflect the trend of social change in China. These data collected from the micro level can more directly reflect the micro status quo and long-term change trend of China's economy and society, and also provide detailed data for domestic and foreign academic research and government decision-making.

The questionnaire of CGSS in 2017 consists of 4 modules (module B is not open to the society). The modules open to the society are A core module, C social network and network society module, and D family questionnaire module, which contains 783 variables.With the joint efforts of the research team, a total of 12,582 valid samples were completed.Therefore, the survey data of 2017 CGSS was selected as the basic data in this paper.However, due to some missing and inapplicable values in the CGSS2017 survey data, we have processed these data.

Table 2 Data description

Variable Obs	Obs	Mean	Std. Dev.	Min	Max
bmi	12582	23.46508	12.74627	0.4	254.6
gender	12582	1.528294	0.4992186	0	1
age	12582	50.00906	16.86365	17	102
age2	12582	2785.266	1710.221	289	10404
marry	12582	0.7668097	0.4228792	0	1
income	12582	1025020	2918984	0	9999999
income2	12582	9570000000000	29400000000000	0	100000000000000
edu	12582	5.180496	3.29168	1	14
familysize	12582	2.90097	3.227887	1	99
house	12582	2.144874	6.025331	1	99
stocks	12582	0.0748689	0.2631901	0	1
funds	12582	0.0422826	0.2012412	0	1
bonds	12582	0.0089016	0.0939312	0	1
med_insurance	12582	1.456207	5.985286	0	1
medicalpay	12582	948201.6	2919994	0	9999999
isurban	12582	1.360753	0.4802382	1	2
internet	12582	2.869417	2.958022	1	2

IV. Empirical Analysis

In this paper, the Probit regression model was firstly used to analyze the correlation between the physical health index and the household's participation in riskyfinan cial assets, and then the Tobit model was used to analyze the influence of the participation of the physical health index on the proportion of the family's risky financial asset allocation.

4.1 The impact of physical health index on household participation in risky financial assets

In this part, the influence of BMI on stocks, funds and bonds is firstly analyzed by Probit regression model.The results show that the p value of the stock =0.022, the p value of the fund =0.920, the p value of the bond =0.748.Because the impact of BMI on funds and bonds is not significant, the following research will take household stock investment as the core explanatory variable.

Table 3 Analysis of the impact of BMI on household stock investment

stocks	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
bmi	0.00496	0.00216	2.29000	0.02200	0.00072	0.00920
gender	0.13364	0.09831	1.36000	0.17400	-0.05905	0.32632
age	0.06493	0.01920	3.38000	0.00100	0.02731	0.10256
age2	-0.00055	0.00019	-2.82000	0.00500	-0.00092	-0.00017
marry	-0.17212	0.12667	-1.36000	0.17400	-0.42038	0.07614
income	0.00000	0.00000	6.09000	0.00000	0.00000	0.00000
income2	0.00000	0.00000	-6.13000	0.00000	0.00000	0.00000
edu	0.15825	0.01676	9.44000	0.00000	0.12540	0.19110
familysize	0.00094	0.01914	0.05000	0.96100	0.03659	0.03846
house	0. 2984218	0.10402	-2.87000	0 . 004	0.50230	-0.09455
med_insurance	-0.00588	0.00708	-0.83000	0.40600	-0.01976	0.00799

medicalpay	0.00000	0.00000	0.06000	0.95100	0.00000	0.00000
internet	0.02811	0.01202	2.34000	0.01900	0.00454	0.05168
cons	-4.15555	0.54569	-7.62000	0.00000	-5.22509	-3.08601

The regression results in Table 3 show that:
(1) There was a significant positive correlation between BMI of respondents and household stock investment stock investment. Generally speaking, people who are in good health can earn more money and have more money to invest in financial markets.

(2) When entering the model according to the actual values of the respondents, age is significantly positively correlated with household stock investment stock investment. However, the quadratic term of age has a significant negative correlation with the possibility of household stock investment, indicating that there is no simple linear relationship between whether a family participates in stock investment and age, but the possibility of participating in stock investment increases first and then decreases with the increase of age. This indicates that the risk financial asset investment of a family has a life cycle.The results of this study are consistent with those of Haslem and John(1979) [22].

(3) There is a significant positive correlation between the education level of respondents and household stock investment. Research results at home and abroad show that the higher the education level is, the stronger the ability to understand financial management knowledge is, and the greater the possibility of investment in financial assets is. The results of this paper are consistent with the research conclusions at home and abroad.

(4) There is a significant negative correlation between family property ownership and household stock investment. In traditional Chinese culture, the understanding of family is not only composed of several people, but also a stable residence. Real estate is so important for Chinese people. However, the total assets of households are relatively fixed, and the purchase of housing by families will inevitably occupy a large amount of working capital, thus affecting the proportion of financial asset investment.

(5) When entering the model according to the actual value of the total household income of the respondents, the total household income and household stock investment present a significant positive correlation, while the square term of the total household income presents a significant negative correlation. Therefore, the effect of household income on stock participation decision-making is marginal diminishing.

(6) There is a significant positive correlation between respondents' Internet use and household stock investment. In recent years, the Internet has provided support for the rapid development of human economy and society, making financial management knowledge and stock market information widely disseminated to families, and also greatly increasing the convenience of family financial investment, thus increasing the possibility of family investment in stocks.

(7) There is no significant positive correlation between the gender of respondents and household stock investment. The possible reason is that although individuals participated in the survey, the questions involved were based on a family, so the gender of the individual respondents had no significant impact.

(8) There is no significant positive correlation between the marital status of respondents and household stock investment. With the change of times, many women in Chinese families are not willing to be housewives, and many of them work and have achieved economic independence. Although the total income of the family has been increased, it still needs in-depth study whether to participate in stock investment.

(9) There is no significant positive correlation between family size and household stock investment. The possible reason is that the larger the family size, the larger the total assets of the family, but the larger the household expenditure, the two cancel each other out, so the effect of family size is not obvious.

(10) There is no significant negative correlation between the participation of respondents in medical insurance and household stock investment. The contribution of medical insurance will inevitably reduce the total amount of household assets, and the medical insurance cannot be withdrawn, so the two are not significantly negative correlated.

(11) There is no significant negative correlation between out-of-pocket medical expenditure and household stock investment. The likely reason is that out-of-pocket medical expenses are paid after Medicare reimbursement. Although it will reduce the total assets of the family, due to the relatively small amount, the negative effect on the household stock investment is not obvious.

4.2 Average marginal effect of health index on household investment in risky financial assets

The average marginal effect of the physical health index on household investment in risky financial assets is presented in Table 4.The probability of investing in stocks for the family increased by 0.05% for each unit increase in BMI.According to the foregoing and the research results of Farinha, Jose & Raposo, Hugo & Galar, Diego(2020) [23], we believe that the investment in risky financial assets of a family has a life cycle. The probability of a family investing in stocks increases by 0.68% for each unit of age increase.But when their retirement income falls, the probability of a household investing in stocks falls by 0.006% for every unit of age. When the number of years of education increases by one unit, the probability of a family investing in stocks increases by 1.7%, indicating that receiving education has a great impact on the allocation of risky financial assets of a family.Due to the relatively fixed income, the probability of households investing in stocks decreases by 0.31% for each unit increase in the probability of households owning a home. Skinner, Jonathan. (1988), Hayakawa,. This Hiroaki spread (2001), and Øverland, Simon & Kinge, J & Knudsen, Ann. (2019) in different periods of study are periodic [24-26], prove the existence of income this study also presents life cycle fluctuations in income, resulting in the family cycle fluctuations in the stock investment.The popularization of the Internet makes online information more convenient. Therefore, the probability of household investment in stocks increases by 2.95% for every unit increase in the level of Internet use. In addition, Logit regression analysis was conducted on explained variables, explanatory variables and control variables in this study, and the results were basically consistent with Probit regression analysis. Moreover, the accuracy of the two models was 93.23% and 93.28%, respectively.

Table 4. Marginal effect of BMI on household stock investment

	dy/dx	Delta-method Std.Err.	z	p>|z|	[95% Conf.	Interval]
bmi	0.005213	0.000228	2.290	0.022	0.0000744	0.0009682
gender	0.140126	0.0103409	1.360	0.174	-0.0062252	0.0343103
age	0.0068233	0.0020282	3.360	0.001	0.0028481	0.0107985
age2	-0.0000573	0.0000204	-2.80	0.005	-0.0000973	-0.0000173
marry	-0.0180865	0.0133248	-1.36	0.175	-0.0442027	0.0080297
income	1.51e-07	2047e-08	6.130	0.000	1.03e-07	2.00e-07
income2	-1.51e-14	2045e-15	-6.17	0.000	-1.99e-14	-2.00e-87
edu	0.0166286	0.0018408	9.030	0.000	0.0130207	0.0202366
familysize	0.0000983	0.0020117	0.050	0.961	0.0038445	0.0040412
house	-0.0313583	0.109771	-2.86	0.004	-0.0528729	-0.0098436
med_insurance	-0.0006182	0.0007439	-0.83	0.406	-0.0020763	0.0008399

medicalpay	1.00e-10	1.65e-09	0.06	0.951	-3.13e-09	3.33e-09
internet	0.0029539	0.012621	2.340	0.019	0.0004803	0.0054274

4.3 Influence of physical health index on financial investment of urban and rural households

In order to analyze the influence of body health index for urban and rural household risky financial investment, first we add on behalf of the regional differences between urban and rural areas control variables to probit model regression, the results as shown in table 5 isurban present a significant negative correlation, and the square of bmi, age, age, total family income, the square of the total household income, level of education, have house property as well as the usage of the Internet p value of the variable not to have the too big change.Then we estimated the average marginal effect of the data set after adding the urban-rural variable isurban. In table 6 we can see the square of bmi, age, age, total family income, the square of the total household income, level of education, whether to own property and the usage of Internet and other variables for the family changes the marginal effect of stock investment is not big, the marginal effect of urban and rural variables isurban showed the existence of urban and rural household risky financial investment is larger, the difference of the urban fhousehold risky financial investment accounts for larger proportion. The reason is that the differences in medical insurance, endowment insurance, education, community service and family income caused by China's urban-rural dualization society have a chain reaction on the allocation of risky financial assets of urban and rural households.

Table 5 Impact of BMI on urban and rural households' participation in stock investment

stocks	**Coef.**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
bmi	0.0050038	0.0022542	2.22	0.026	0.0005858	0.0094219
gender	.1423188	0.0996848	1.43	0.153	-0.0530599	0.3376974
age	0.0595199	0.0193691	3.07	0.002	0.0215572	0.0974827
age2	-0.005048	0.0001349	-2.59	0.010	-0.0008869	-0.0001227
marry	-0.1378707	0.1290195	-1.07	0.285	-0.3307443	0.1150029
income	1.32e-06	2.37e-07	5.56	0.000	8.52e-07	1.78e-06
Income2	-1.32e-13	2.35e-14	-5.61	0.000	-1.78e-13	-8.57e-14
edu	0.1368131	0.0173555	7.88	0.000	0.1027969	0.1708292
familysize	0.0009483	0.0176264	0.05	0.957	-0.0335988	0.0354953
house	-0 .2554241	0.1059568	-2.41	0.016	-0.4630955	-0.0477526
med insurance	-0.005932	0.0068936	-0.86	0.390	-0.019443	0.0075793
medicalpay	-3.25 e-10	1.59E-08	-0.02	0.984	-3.15e-08	3.09e-08
internet	0.0311171	0.0127798	2.43	0.015	-1.300191	0.0561651
isurban	-0.8713793	0.2187856	-3.98	0.000	-1.300191	-0.4425675
cons	-2.986647	0.604819	-4.34	0.000	-4.17207	-1.861223

Table 6 Differences in the marginal effect of BMI on urban and rural household stock investment

	dy/dx	**Delta-method std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
bmi	0.0005175	0.0002334	2.22	0.027	0.0000601	0.000975
gender	0.0147197	0.0103156	1.43	0.154	-0.0054986	0.034938
age	0.066156	-0.0020687	3.06	0.002	0.002219	0.010093
age2	-0.0000522	0.0000202	-2.58	0.010	-0.000918	-0.0000126

marry	-0.0142596	0.0133519	-1.070	0.286	-0.040429	0.0119097
income	1.36e-07	2.42e-08	5.63	0.000	8.88e-08	1.84e-07
incomes	-1.36e-14	2.40e-15	-5.68	0.000	-1.83e-14	-8.93e-15
edu	0.0141502	0.0018218	7.77	0.000	0.0105796	0.0177208
familysize	0.0000981	0.0018231	0.05	0.957	-0.0034751	0.0036712
house	-0.0264179	0.0109755	-2.41	0.016	-0.0479234	-0.0049064
ned insurance	-0.0006135	0.0007128	-0.86	0.389	-0.0020106	0.0007836
medicalpay	-3.36e-11	1.65e-09	-0.02	0.984	-3.26e-09	3.19e-09
internet	0.0032184	0.0013222	2.43	0.015	0.0006269	0.0055098
isurban	-0.091246	0.0230627	-3.91	0.000	-0.1353266	-0.0449226

4.4 Endogenous test

The involvement of BMI in household risky financial investment may be endogenous.In order to reduce the regression error caused by endogeneity, this paper uses instrumental variables to conduct endogeneity test, and the system indicates that endogeneity does not exist.

V. Conclusion

Using the survey data of CGSS2017, this paper empirically analyzes the impact and average marginal effect of BMI on Chinese households' participation in risky financial investment. By controlling the family demographic characteristics, wealth characteristics, Internet use, out-of-pocket medical expenditure and other variables, the regression results based on the Probit model show that:

1. BMI of the respondents significantly positively affected the decision-making of household stock investment and the mean marginal effect of household stock investment. Therefore, strengthening the management of family members' body quality has a significant impact on the allocation of risky financial assets.
2. The investment in risky financial assets of families has a life cycle. There is no simple linear relationship between whether a family participates in stock investment and its age, but the possibility of participating in stock investment increases first and then decreases with the increase of age.
3. The education level of respondents has a significantly positive impact on the decision of participating in household stock investment and the average marginal effect of household stock investment. For each additional unit of years of education, the probability of a household investing in stocks rose 1.7%.Greater access to education, therefore, will help raise household incomes and thus increase the likelihood that households will participate in financial investments.
4. There is a significant negative correlation between family property ownership and household stock investment. When the probability of household home ownership increases by one unit, the probability of households investing in stocks decreases by 0.31%.According to the data of the People's Bank of China in 2019, the home ownership rate of China's urban residents is as high as 96.0%, while the proportion of financial assets is only 20.4%. As well as the policy orientation of "housing and housing not speculation" by the end of 2020, we believe that in the next few years, the focus of Chinese households' asset allocation will shift to the field of financial assets.
5. There is a significant positive correlation between total household income and household stock investment, while the square term of total household income shows a significant negative correlation. The effect of total household income on stock participation decision-making is marginal diminishing.Under the influence of novel coronavirus epidemic, international trade has been greatly impacted. China needs to increase the total income of the family, reduce the expenditure on medical

treatment, education and housing, and guide the scientific and rational allocation of family assets, thus accelerating the operation of the great domestic cycle.

6. The use of the Internet increases the probability of households participating in financial asset investment.With the popularity of 5G mobile network and the increasing popularity of the concept of family financial management, we believe that financial enterprises should develop more diversified and convenient financial products to meet the financial asset allocation of families.
7. The dual economic structure between urban and rural areas in China has resulted in serious differences in financial investment between urban and rural households.In the future, we should continue to promote the rural revitalization strategy, make up for the shortcomings of rural health care, education, transportation, communication and other infrastructure, increase farmers' income, and reduce the urban-rural gap.

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