The Decision Effects on Household Finance in China: Householder or Spouse

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***Abstract*—This paper uses the data of the China Household Finance Survey 2011 to research the impact of decision effects on household asset allocation. The results show that the family asset allocation significantly influenced by the attitude toward risk adopted by the householder spouse, and the family with lower risk aversion are more likely to hold the risky assets. The education level of the spouse can also affect the household asset allocation decisions significantly. Families with higher spousal education are more likely to invest in risky markets. And the families with same average educational level may have some differences in asset allocation due to the educational level gap. These results may reflect that: When family makes its decision on allocate assets, it may not only consider the investors' characteristics who invest, but also consider the personal characteristics of other members in the family. Although the impact may have some differences, but the final asset allocation is depended on the overall participate ability level of the family. These results can provide a theoretical and empirical basis for China to establish some policies to develop the risky assets market and guide the residential participation in the risky assets market.**

***Index Terms*—Family members, asset allocation, family decisions.**

I. Introduction

In recent years, family financial problem is an important subject studied by scholars. With the development of China's economy, the income of people has been increasing, and the wealth of the family has been expanding too. The allocation of assets is an important part in family wealth accumulation. The family takes part in the risky assetss according to their own characteristics. In the traditional portfolio theory, families should hold some risky assetss no matter what kind of risk attitude they have. However, according to the China Household Finance Survey 2011, Limited by transaction cost, ability level and other factors, current financial participation of families is not active, family investment is very conservative, most families are not participating in the risky assets market. Therefore, researching the influencing factors of family asset allocation decision further cannot only improve the rationality of family investment, but also improving the rationality of the related policies of the asset market

Family investment is very conservative, most families are not participating in the risky assets market is not the phenomenon endemic to developing countries, it is also existing in many developed countries. Scholars analyze the difference of family choice of assets allocation from the demographic characteristic, income wealth characteristic, subjective attitude and background risk.

This paper mainly concerns the asset allocation in a married family. According to China's Sixth National Census data. On the other hand, among the residents over 15 years of age in China, people who married are accounted for 71%, the number of married families is very large. On the other hand, compared with the solitary families, married families have higher family income and wealth, and the choice of asset allocation they make has a more significant impact on the economy and society. Therefore, it is important to further research the married families' assets allocation. Differ from the previous studies on household asset allocation. This paper attempts to research the household asset allocation from family decision making and joint participation. The research on the labor service and household affairs' decision making has already begun, families make different decision due to the difference of personal characteristics between husband and wife. Educational level, income level and other factors have an important influence on family labor service and affairs' decision making. But there is little literature to discuss whether the differences in personal characteristics between householder and spouse can also affect the allocation of household assets. So, this paper will use the China Household Finance Survey 2011's Data to discusses the influence factor of the married families' assets allocation through the empirical research. Analyzes how the personal characteristics of the householder and spouse affect the family asset allocation through decision making and joint participation. The paper's structural are as follows: second part is the literature review, the third part is the introduction of variables and models, the fourth part is the data and descriptive statistics, the fifth part is the empirical results, finally is the Conclusion.

II. Literature Review

For the differences in household asset allocation, one view is that household asset allocation's different is due to the difference in family's risky assets market participate ability. These studies suggest that the difference in household income, wealth and education level makes a difference in the risk market participate ability, and it makes families make different asset allocation decisions. Because the family is aware of the limitations of its participation ability, it chooses to avoid the risky assets market where its participation ability is not enough [1]. It will lead families to make different asset allocation decisions. Higher financial knowledge, education level can help investors learn the investment knowledge of risky assets market and collect the relevant information, it will

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raise family participation degree in risky assets market [2]. The improve in family income, wealth and people's education level will also help to offset the cost of participation in risky assets markets and reduce the sensitivity of families in risk [3]-[5].

In fact, the risks faced by a family when it makes some economic activities are not only involved in the risks of investment, but also involved the health level of family members and the stability of family income. Therefore, the influence of background risk on family investment decisions has attracted more and more scholars. Many studies believe that families' asset allocation will be affected by family background risks. The family with higher background risks may be more sensitive to the risk of asset allocation. It is an important reason for families to make different asset allocation decisions. For example, the family with higher income risk will investment risky assetss less [6], [7], and families with higher work flexibility will be more participate in risky assets market. Investors with poor health or higher expected health risks may have less risky assetss [8], [9], but some measures such as marriage and insurance can reduce background risks and increase the family proportion of risky assetss [10].

The family asset allocation decision is a subjective decision made by family members according to the personal and family characteristics. Therefore, there is a discussion about whether the family members' subjective attitude can influence the decision of asset allocation in academic. Scholars have research on the influence factors such as the risk attitude and trust level of the householder on the asset allocation decisions. Most research believed that risk aversion will inhibit investors participate in risky assets market [11], but families with higher social trust and social satisfaction will be more active in the risky assets market [12]. But some studies found that people's subjective risk perception is weakened due to the social interactions, and the impact of risk attitudes on household asset allocation in Chinese family is not significant [13].

In addition to participation ability, background risk and subjective attitude, family structure is also an important factor in family asset allocation research. Families have differences age structure may make a different asset allocation. Aging families adjust their portfolios and participate less in risky asset markets [14], [15]. The difference in expected expenditure resulting from family structures is also an important factor influence the asset allocation, such as the sandwich family may more positive to participate in risky assets market investment than other families [16].

The study of family decision making involves housework time, intergenerational resource allocation and family affairs. Factors such as premarital payment, relative income, family contribution rate, and the gender of children can influence the family power distribution. And due to the cultural differences, there may be some different between urban and rural [17], [18]. Different family power distribution also has an influence on the family decision making. For example, the position of wife will significantly affect the family economic support to the wife's parent, and it will be affected by the relationship between husband and wife [19]. The research on the family power distribution does not directly involve the allocation of assets. But the opinion that family power distribution may influenced by factors such as the relative income and educational level of the husband and wife inspired this paper to research the household asset allocation from the family decision making and the joint participation.

Reviewing the existing studies on the influencing factors of family asset allocation, the main object is the householder or whole family. The difference in householder's personal characteristics and whole family characteristics leads to the differences of family asset allocation decision. However, whether the asset allocation decision of the family is only made according to householder's personal characteristics and family characteristics? Whether the spouse who is an important member of the family can also affect the family final asset allocation decision through influence the family risk preference level and the risky assets market participation ability? Whether family members with different characteristics have the different impact on household asset allocation? These questions are less discussed in the existing literature.

Because of the participation cost of risky assets investment. Investors need to spend time and money in information collection and knowledge learning when he participating in risky assets market activities. Investors' characteristics such as financial knowledge level and education level can reflect them participate ability in risky assets market investment. High education level can make it easier for investors to learn the risk investment knowledge and collect information. Therefore, the improve in financial knowledge and education level will promote investors to participate in risk market investment [20]. As a microeconomic individual, the family will participate in the risky market according to its own ability condition. In the decision making of family, family will divide the work, housework and leisure according to the member's marginal benefit which is difference due to the personal characteristics. Risky assets market investment activities are economic activity that take time and requires education level. Different family members have different ability, and the investment activities of the family will be distributed according to the member's personal characteristics. So, the investment activities of the family may have two types: individual participation and joint participate. In the existing research, the research variables is the education level of householder，it is consider the individual participation type. It may happen when the spouses participate ability is much lower than householders participate ability. This paper tries to analysis that whether spouse's characteristics can affect the family participation ability and affect the decision of family asset allocation through the joint participation type.

On this, Hypothesis 1: Spouse's education level can affect the household asset allocation decisions.

Subjective attitude factors such as risk attitude have a significant effects on household asset allocation, but most research focused on how the risk attitude of the householder influence the family asset allocation. These researches believe that the risk aversion of the householder will make family away from risky assets market. But there are few literature analyses whether both husband and wife's risk attitude can impact on the family asset allocation. And most study of family decision making believe that family decision is a game process, family members influence family decision through

bargaining process. This paper tries to discuss that whether the spouse's risk attitude can affect the family asset allocation through the bargaining process.

On this, Hypothesis 2: Spouse's risk attitude will affect the family asset allocation decision.

The allocation of the family investment activities is based on the family members participate ability. Members with a higher education level may be more active in the family investment activities. And the resources owned by family members determine the member's bargaining power. Therefore, the members with higher education level may have a greater influence in the whole family participate ability. And the higher education level members can also get higher family power. So, their individual Characteristics may have a greater impact on family asset allocation decisions.

On this, Hypothesis 3: The members with different educational levels has a difference in the weights of household asset allocation decisions. The correctness of the above hypothesis will be tested in the empirical study.

III. Variables and Models

A. Variable Setting

To study the influence of the spouse's education level, risk attitudes, and family education structure on the household assets allocation. This paper chooses the family risky assetss holding and the proportion of risky assetss as the explanatory variables. Referring to the experience of the existing literatures, the control variables in this paper mainly include: the characteristic of the householder (Householder's gender, age and education level), family characteristics (family income, size and wealth). The variables setting are as follows:

(1) risky assetss holding. Based on the information from the China Household Finance Survey 2011 and Yin Zhixu 's method (2014). In this paper, the family financial assets mainly include: cash, demand deposits, time deposits, bonds, stocks, funds, financial products. Risky assets mainly include: Stocks, funds, Corporate bonds, financial bonds and financial product. Gold, foreign exchange, and financial derivatives are often considered as risky assets, but these assets are not represented on the amount of data. Risky assetss holding indicates whether the family has participated in the risky assetss market. If the family is holding one asset of the risky assetss, it is assigned a value of 1 and if not, it will be assigned a value of 0.

(2) Proportion of risky assetss: The proportion of risky assetss in total financial assets in family, representing the depth that family participating in the risky assets markets.

(3) Spouse's education level, the education level of spouse. The China Household Finance Survey 2011's questionnaires included nine levels of education: no schooling, primary school, junior high school, high school, secondary specialized school, fachhochschule, bachelor degree, master degree, and doctor degree, and we assigned these from 1 to 9. Reference He Xingchang, etc. (2009),Wu weixing and Tan Hao (2017), in the robust test, this paper assign no schooling, primary school, junior high school, high school, secondary specialized school, fachhochschule, bachelor degree, master degree, and doctor degree as 0,5,8,11,14,15 and 18. And adding high school education dummy variable, in order to test whether the variables setting may affect the result and the different impact in different education stage

(4) Spouse's risk attitude, the risk attitude of the spouse. The question about risk attitude in China Household Finance Survey 2011's questionnaires is: If you have an asset, what kind of asset would you like to choose? 1, high risk high return assets 2, slightly higher risk slightly higher return assets 3, average risk average return assets 4, low risk low return assets, 5, unwilling to take risk. Refer to Wang Cong, Tian Cunzhi (2012), We assigned 1 to 5 to the answer 1 to 5.

(5) Highest education level, the highest educational level of householder and spouse's.

(6) Lowest education level, the lowest educational level of householder and spouse's.

(7) Average education level, the average education level of householder and spouse.

(8) Education level gap, the highest education level subtracts the lowest education level.

(9) Spouses engaged in financial services, due to the China Household Finance Survey 2011's questionnaire did not investigate the people's financial knowledge, which had influence on the family asset allocation. This paper chooses spouses engaged in financial services as a proxy variable to financial knowledge. The spouses engaged in financial services will assigned 1, otherwise assigned 0.

(10) To be consistent with other literatures, this paper add some control variable such as demographic characteristics, income and wealth level, family structure which can affect family asset allocation, including: 1, Householder's gender, male is assigned 1, women is assigned 0. 2, Householder's age. To be consistent with other literatures, this paper add the age's squared to research the nonlinear relationships. 4, Householder's education level. 3, Family size, Total residence number of families. 5, Family income, in order to avoid the influence of the relationship between risky assets investment and property income on the research, the family income excluding the property income, and the family income's square is added in the empirical study to analysis the nonlinear relationship. 6, Family Wealth. Family assets minus family debt.

B. Model Settings

The empirical part of this paper will from the perspectives of family participation in decision-making and proportional distribution to research the influence of spouse's risk attitude, education level and family education level gap on family asset allocation decision. This paper studies the influence factors of family participation decision in risky assets market by participation probability model and studies the influencing factors of the allocation decision of risky assetss by participation depth model.

1) Participation probability model

Referring to the relevant literature, whether to hold the risky assets is a 0~1variable. To research the question that risky assets market participation probability of the family, this paper uses the Probit model. Model (7) is the regression model to research the relationship between spouse's education level and family risk market participation. Model (8) is the regression model to research the relationship between spouse's risk attitude and family risk market participation. Model (9) and Model (10) is the regression model to research the relationship

between family education level structure and family risky assets participation. The models are setting as follows:

$$Risk = 1(\alpha \text{Edu}\_m + \beta \text{Job} + \delta \text{Person} + \chi \text{Family} + \mu > 0) \quad (1)$$

$$Risk = 1(\alpha \text{Attitude}\_m + \beta \text{Edu}\_gap + \delta \text{Person} + \chi \text{Family} + \mu > 0) \quad (2)$$

$$Risk = 1(\alpha \text{Edu}\_\max + \beta \text{Edu}\_\min + \delta \text{Person} + \chi \text{Family} + \mu > 0) \quad (3)$$

$$Risk = 1(\alpha \text{Edu}\_\text{avg} + \beta \text{Edu}\_\text{gap} + \delta \text{Person} + \chi \text{Family} + \mu > 0) \quad (4)$$

Among them, $\mu \sim N(0, \sigma^2)$; Risk=1 means the family holds risky assets, Risk=0 means the family did not hold risky assetss. Edu_m, Job, Attittude_m, Edu_gap, Edu_max, Edu_min, Edu_avg are the explain variables. Depending on the research needs, the variables respectively indicate the spouse's education level, spouse's work, spouse's risk attitude, education level gap, highest education level, lowest education level and average education level. Person is indicating the personal characteristic variables of the householder, including the householder's age, householder's gender, householder's education level, Family is indicating the Family characteristic variables, including family income, wealth and size.

2) Participation depth model

Because of the proportion of risky assetss in financial assets is truncated. Reference to other research. We use the Tobit model to study the risk market participation depth. Model (11) is the regression model to research the relationship between spouse's education level and risk market participation depth. Model (12) is the regression model to research the relationship between spouse risk attitude and risk market participation depth. Model (13) and Model (14) is the regression model to research the relationship between family education level structure and family risky assets participation depth. The models are setting as follows:

$$risk\_p^* = \alpha \text{Edu}\_m + \beta \text{Job} + \delta \text{Person} + \chi \text{Family} + \mu, \quad Risk\_p = \max(0, risk\_p^*) \quad (5)$$

$$risk\_p^* = \alpha \text{Attitude}\_m + \beta \text{Edu}\_gap + \delta \text{Person} + \chi \text{Family} + \mu, Risk\_p = \max(0, risk\_p^*) \quad (6)$$

$$risk\_p^* = \alpha \text{Edu}\_\max + \beta \text{Edu}\_\min + \delta \text{Person} + \chi \text{Family} + \mu, \quad Risk\_p = \max(0, risk\_p^*) \quad (7)$$

$$risk\_p^* = \alpha \text{Edu}\_\text{avg} + \beta \text{Edu}\_\text{gap} + \delta \text{Person} + \chi \text{Family} + \mu, \quad Risk\_p = \max(0, risk\_p^*) \quad (8)$$

Among them, Risk_p* is sample observations for the proportion of risky assetss in financial assets, Risk_p is the proportion of risky assetss in financial assets, other variables are setting as above.

IV. Data and Descriptive Statistics

The data used in this paper are from the China Household Finance Survey 2011(CHFS2011). It was launched by the China Family Finance Survey and Research Center of Southwestern University of Finance and Economics in 2011. The survey visited more than 8400 households in 25 provinces (cities) across China, collecting the information about their demographic characteristics, assets, liabilities, insurance, expenditure and income. Due to the risk attitude question only respond form the questionnaire's responder. Based on the research needs, this paper selected the questionnaire responder's family who have spouses as the study samples. Because of there are some invalid data, default values in the survey data, after removing the samples which missing the key variables, we finally got 3966 family samples.

Table I is the descriptive statistical results for the main variables of this paper. Winsorize processing has been down for all continuous variables in 1% and 99% quintiles. By Table I we can find some conclusions: first, the average number of gender variables in households is 0.764, the average education level of the householder is 3.608, the average spouse's educational level is 3.293. This shows that the householder in our family is mainly male, and the average level of the householder is higher than spouse. Second, the average value of the risky assets holding is 0.119, the average value of the risky assetss proportion is 0.070, which shows that only 11.9% households holding the risky assetss, and the average proportion of risky assetss in financial assets is 7%. Third, China have a low level of education, the average value of the education level is 3.608, between middle school and high school education. Fourth, the average family size of family is 3.187, average family income is 27,420,000 yuan and average family wealth is 479,800 yuan. However, the standard deviation of family income and wealth is big, which reflects the income gap in China.

TABLE I: Statistical Description of Variables

Variable name	Average	Standard deviation	Maximum Value	Minimum value
Householder's Gender	0.764	0.425	1	0
Householder's Age	49.042	14.023	93	16
Householder's Educational level	3.608	1.742	9	1
Spouse's Educational level	3.293	1.775	9	1
Highest Educational level	3.865	1.786	9	1
Lowest Educational level	3.037	1.644	9	1
Average Educational level	3.451	1.650	9	1
Educational level gap	0.828	0.949	6	0
Spouses engaged in financial services	0.011	0.105	1	0
Family size	3.187	1.183	9	2
Family income (million)	2.742	4.479	29.04	0
Family wealth (million)	47.98	81.05	500.9	0.021
Hold risky assets	0.119	0.324	1	0
Proportion of risky assetss	0.070	0.219	1	0

Because of the risk attitude question in China Household Finance Survey 2011 only respond form the questionnaire's responder. Therefore, in the study of the impact of spousal risk attitudes on household asset allocation, we only used the sample that spouse is the respondent, but in other empirical

research we used all the family samples that described above. In the above 3966 samples only 988 samples meet the requirements, the Table II is the descriptive statistical results for the main variables of these samples. It is not difficult to find that most statistical results are consistent with Table I.

TABLE II: STATISTICAL DESCRIPTION OF VARIABLES

Variable name	Average	Standard deviation	Maximum Value	Minimum value
Householder's Gender	0.931	0.253	1	0
Household's Age	47.686	12.816	87	22
Householder's Educational level	3.513	1.693	9	1
Spouse's Educational level	3.221	1.662	9	1
Spouse's Risk Attitude	3.955	1.185	5	1
Family income (million)	2.703	4.161	25.8	0
Family wealth (million)	44.594	79.592	501	0.01
Hold risky assets	0.111	0.315	1	0
Proportion of risky assetss	0.066	0.215	1	0

V. EMPIRICAL RESULTS

A. Spouse Characteristics and Family Asset Allocation

To analysis the influence of spouses' education level and occupations on family asset allocation. We used the data of China Family Finance Survey 2011 and construct the Probit model and the Tobit model.

In the Probit model of Table III. The results show that the marginal effect of the spouse's education level is significantly greater than 0 at the 1% level. But the marginal effect of the spouse's engagement in the financial industry's work is not significantly different from zero. This result shows that the spouse's education level has a significant impact on the family risk market participate. And the influence of whether the spouse is engaged in the financial industry does not affect the family risk market participation. This regression result partially supports the hypothesis in the second part of the paper.

In addition, as the results of other control variables in the Probit model. The marginal effect of family size is significantly less than zero, excessive family members will inhibit the family risky assets investment. The marginal effect of householder's gender is not significantly different from zero. The marginal effect of the householder's age and age square is significantly different from zero in the 5% level, it means that there is a nonlinear relationship between the householder's age and the family risky assets market participate. The marginal effect of householder's education level is significantly greater than zero at the 1% level, it means that a higher education level of householder can promote family investment in risky assetss. The marginal effect of family wealth is significantly greater than zero at the 1% level, and the marginal effect of family income is significantly greater than zero at the 5% level. This indicates that families with more income wealth have a higher probability of participating in the risk market. But the marginal effect of the family income squared item is significantly less than 0 at the 1% level, it means that the positive impact of income on family risk market participation is diminishing. In the Probit model, most of the control variables have a significant regression results, and the result is same as the existing literature. These results illustrates the rationality of this study. But, we still need to research the relationship between variables and the proportion of risky assetss through the Tobit model.

In the Tobit model of Table III. The results show that the regression coefficient of the spouse's education level is significantly greater than zero at the 1% level, and the regression coefficient of the spouse work in the financial industry is significantly greater than zero at the 10% level. Referring to the regression results of the Probit model, this may show that the education level of spouse not only has a significant impact on the family risky assetss participation, but also has a significant impact on the family risky assetss allocation.

It is not difficult to find from Table III. The most control variables' regression results in the Tobit model is consistent with the Probit model. This result verifies that the influencing factors of family risky assets participation will further influence the proportion of risky assetss. In the control variables' regression results, there is a nonlinear relationship between the householder's age and the proportion of risky assetss. Families with higher householder's education level will invest more in risky assetss. And families with more wealth and income will hold more risky assetss too. But the impact of income on risky assetss' proportion is decreasing. These results are consistent with the Probit model, which shows the robustness of the conclusion

TABLE III: INFLUENCE OF SPOUSE'S EDUCATION LEVEL ON FAMILY ASSET ALLOCATION

Variable name	Probit Model		Tobit Model	
	Marginal effect	*t*	Regression coefficient	*t*
Spouse's educational level	0.027	7.14***	0.165	6.99***
Spouse engaged in financial services	0.036	1.24	0.282	1.69*
Family size	-0.016	-3.21***	-0.091	-3***
Householder's Gender	0.012	1.2	0.073	1.18
Householder's Educational	0.016	4.43***	0.1	4.49***
Family income (million)	0.006	4.82***	0.024	3.28***
Family income (million) square	0	-4.65***	0	-3.48***
Family wealth (million)	0	9.32***	0.002	8.42***
Householder's Age	0.01	4.39***	0.065	4.41***
Householder's Age square	0	-4.37***	-0.001	-4.44***
Intercept item			-3.672	-8.8***
Pseudo R2	0.2659		0.2112	

Table III is the regression results of the spouse's risk attitudes and household asset allocation. From the results, it is easy to find that the spouse's risk attitude variable has a significant negative influence on the explanatory variable both in the Probit model and Tobit model, and its regression coefficient (marginal effect) is − 0.118 (-0.018), significant at the 1% level. These results may reflect that higher spouse's

risk aversion levels will inhibit family invest the risky assets market. This result verifying the hypothesis 2 that spouse's risk attitude can affect family asset allocation by affecting the level of family risk aversion. After replacing the spouse's education level variable with the education level gap variable, the regression coefficient (marginal effect) of the education level gap is -0.225 (-0.032), significant at the 1% level. This shows that the families with greater education level gaps will invest less in the risk market. This result verifies the hypothesis 1.

In the estimation results of other variables, we can see that most regression coefficients and significance levels of the control variables is consistent with the results in Table III. The householder's education level has a significant positive impact on the family risky asset market participation. The increase in families' income and wealth will promotes the family risky assets market investment activities. Also, there is a nonlinear relationship between household's age and family risky assets market investment.

TABLE IV: THE INFLUENCE OF SPOUSE RISK ATTITUDE ON FAMILY ASSET ALLOCATION

Variable name	Probit Model		Tobit Model	
	Marginal effect	*t*	Regression coefficient	*t*
Spouse's Risk Attitude	-0.018	-2.64***		
Family size	-0.007	-0.72	-0.039	-0.56
Householder's Gender	0.026	0.85	0.188	0.87
Householder's Educational	0.04	7.1***	0.297	6.15***
Family income (million)	0.009	2.79***	0.048	2.09**
Family income (million) square	0	-2.2**	-0.001	-1.95**
Family wealth (million)	0	4.26***	0.002	3.24***
Householder's Age	0.011	2.38**	0.07	2.03**
Householder's Age square	0	-2.16**	-0.001	-1.86*
education level gap between householder spouses	-0.032	-4.36***	-0.225	-4***
Intercept item			-4.05	-4.04***
Pseudo R2	0.2956		0.2149	

B. Education Level Structure and Family Assets Allocation

Table V reports the regression results of the education level structure and family asset allocation. The model (1) (2) is the regression result of the Probit model, and the model (3) (4) is the regression result of the Tobit model. The core explanatory variables in models (1) and (3) are highest educational level and lowest level variables. It is not difficult to find that the regression coefficient and significance of highest educational level variable are greater than the highest educational level variable. It may reflect that when the family make its decision, the educational level of highest educational level members has greater influence. This result verifies the hypothesis 3 of Part2. The explanatory variables in Models (2) and (4) are the average education level variable and education level gap variable. The regression coefficients of these two variables are significantly greater than 0 at the 1% level. This result indicates that the families with higher average educational levels will invest more in risky assets. The proportion of investment in risky assets has a catalytic effect. In families with similar average education levels, families with higher education level gap will invest more in risky assets. To a certain extent, it also confirms that there is a significant difference in the influence of the degree of high-education and low-education people found in model (1) on the distribution of household assets. This result confirms the point that when the family make its decision, the educational level of highest educational level members has greater influence.

In the regression results, the regression results of control variables did not change significantly with the regression results in Table IV above. The relationship between householder age and asset allocation remains nonlinear. And more family income and wealth will encourage families to invest in risky assets. The expansion of household size will inhibit the family risk market investment.

TABLE V: INFLUENCE OF FAMILY EDUCATION LEVEL STRUCTURE ON ASSET ALLOCATION DECISION

	Probit Model		Tobit Model	
	(1)	(2)	(3)	(4)
Education level gap		0.054* (1.83)		0.060** (2.27)
Family size	-0.110*** (-3.19)	-0.110*** (-3.19)	-0.09*** (-2.98)	-0.090*** (-2.98)
Householder's Gender	0.059 (0.85)	0.059 (0.85)	0.05 (0.82)	0.050 (0.82)
Family income (million)	0.042*** (4.89)	0.042*** (4.89)	0.024*** (3.41)	0.024*** (3.41)
Family income (million) square	-0.001*** (-4.7)	-0.001*** (-4.7)	0*** (-3.58)	0.000*** (-3.58)
Family wealth (million)	0.003*** (9.37)	0.003*** (9.37)	0.002*** (8.48)	0.002*** (8.48)
Householder's Age	0.072*** (4.41)	0.072*** (4.41)	0.065*** (4.44)	0.065*** (4.44)
Householder's Age	-0.001*** (-4.46)	-0.001*** (-4.46)	-0.001*** (-4.54)	-0.001*** (-4.54)
Spouses engaged in Financial industry	0.270 (1.34)	0.270 (1.34)	0.296* (1.78)	0.296* (1.78)
Highest education level	0.199*** (6.55)		0.189*** (6.83)	
Lower education level	0.090*** (2.77)		0.07** (2.43)	
Average education level		0.289*** (13.47)		0.259*** (12.31)
Intercept item	-4.110*** (-9.22)	-4.110*** (-9.22)	-3.681*** (-8.83)	-3.681*** (-8.83)
Pseudo R2	0.2662	0.2662	0.2119	0.2119

C. Robustness Test

1) Different setting for education level variables

Some scholars believe that the impact of education stages on the assets allocation is different (Wu Weixing, 2017). Compared with other levels of education, undergraduate or higher education has a greater impact on risky assetss investment. The impact of education level in the risk market is not uniform, and some of the literature uses education years instead of education levels as indicators of the education (He Xingqiang etc., 2009, Li Tao and Guo Jie, 2009, Yin Zhichao etc. 2014). Therefore, to test the robustness of the conclusions

above, we use 1, 5, 8, 11 ,14 ,15 and 18to respectively for non-going school, elementary school, junior high school, high school and secondary school, college, undergraduate, graduate and above. And make a dummy variable to high school and undergraduate or above, then re-running the above models to research.

TABLE VI: THE INFLUENCE OF DIFFERENT EDUCATIONAL LEVEL SETTING AND FAMILY ASSET ALLOCATION

Variable name	Probit Model		Tobit Model	
	Regression coefficient	*t*	Regression coefficient	*t*
Family size	-0.119	-3.46***	-0.1	-3.27***
Householder's Gender	0.08	1.13	0.07	1.13
Family income (million)	0.049	5.79***	0.032	4.44***
Family income (million) square	-0.001	-5.45***	0	-4.36***
Family wealth (million)	0.003	9.82***	0.002	8.87***
Householder's Age	0.061	3.8***	0.055	3.8***
Householder's Age square	-0.001	-3.91***	-0.001	-3.96***
Spouses engaged in financial industry	0.337	1.67*	0.345	2.07**
Householder's education level is high school/Secondary school	0.372	4.47***	0.338	4.48***
Householder's education level is college or above	0.46	4.67***	0.414	4.64***
Spouse's education level is high school/Secondary school	0.531	6.33***	0.502	6.49***
Spouse's education level is college or above	0.721	6.93***	0.649	6.81***
Intercept item	-3.154	-7.63***	-2.82	-7.38***
Pseudo R2	0.2654		0.2113	

TABLE VII: THE INFLUENCE OF EDUCATIONAL LEVEL ON THE FAMILY ASSETS ALLOCATION

Variable name	Probit Model		Tobit Model	
	Regression coefficient	*t*	Regression coefficient	*t*
Family size	-0.111	-3.16	-0.090	-2.93
Householder's Gender	0.068	0.97	0.058	0.95
Family income (million)	0.045	5.27	0.027	3.8
Family income (million) square	-0.001	-4.96	0.000	-3.85
Family wealth (million)	0.003	9.17	0.002	8.27
Householder's Age	0.065	4.02	0.059	4.07
Householder's Age square	-0.001	-3.94	-0.001	-4.05
Highest years of education	0.093	6.04	0.088	6.29
Lowest years of education	0.059	4.12	0.050	3.93
Intercept item	-4.299	-9.55	-3.867	-9.15
Pseudo R2	0.2716		0.2169	

Table VI and Table VII is the regression results of the impact of spouse education level on family asset allocation which under the two education level setting methods. It is easy found that under the two different setting methods. The regression coefficients of the explanatory variables are all significantly greater than 0 at the 1% level. This regression result is consistent with the results in Table IV and Table VI. This result shows that even if the method of education level setting changes, the conclusion that the spouse's educational level will significantly affect the allocation of family assets, and family members of different educational levels will have different influence on the family asset allocation will not change. At the same time, there is a difference in the regression coefficients at each educational stage. This result also confirms the view that the impact of education level on risk market participation is not uniform.

2) Different sample selection

Because of the risk attitude question in China Household Finance Survey 2011 only respond form the questionnaire's responder. the above study only included the sample family that respondents are the householder's spouse. Sample selection may result in fewer samples and reduce the reliability of conclusions. Therefore, to further test the robustness of the conclusion that the education level gap will significantly affect the household asset allocation. This paper relaxes the sample selection to the family that the householder has spouse and converts the spouse risk attitude variable to the questionnaire respondent's risk attitude. Then, we add the cross multiplicative term of respondent is householder variable and questionnaire respondent's risk attitude and re-running the above model for analysis.

Table VIII is the regression results. It is not difficult to find that the regression coefficient of the risk attitude variable is significantly less than 0 at the 1% level both in the Probit model and Tobit model. And the regression coefficient of the dummy variable that the respondent is householder and cross multiply items is not significantly different from 0. This result may indicate that whether the questionnaire respondent is householder or spouse, the risk attitude of respondents has a significant impact on the family assets allocation. This result further validates the robustness of the conclusions in this paper.

TABLE VIII: THE INFLUENCE OF RISK ATTITUDE ON FAMILY ASSET ALLOCATION AFTER RELAXING SAMPLE

	Probit Model		Tobit Model	
	Regression coefficient	*T*	Regression coefficient	*T*
Family size	-0.121	-3.47***	-0.098	-3.25***
Householder's Gender	0.04	0.54	0.032	0.5
Family income (million)	0.038	4.48***	0.021	2.98***
Family income (million) square	0	-4.32***	0	-3.15***
Family wealth (million)	0.003	8.82***	0.002	7.91***
Householder's Age	0.078	4.74***	0.068	4.72***
Householder's Age square	-0.001	-4.45***	-0.001	-4.49***
Spouses engaged in financial industry	0.22	1.08	0.253	1.54***
Respondent's risk attitude	-0.141	-2.76***	-0.112	-2.57***
Respondent is householder	0.114	0.52	0.141	0.75
Respondent's risk attitude *Respondent is householder	-0.034	-0.59	-0.041	-0.83
Householder's Education level	0.101	4***	0.088	4.02***
Spouse's education level	0.186	7.11***	0.162	6.95***
Intercept item	-3.741	-7.71***	-3.291	-7.51***
Pseudo R2	0.2797		0.2232	

VI. Conclusion

This paper uses the data of China Household Finance Survey 2011 to research the influence of spouse's educational level and risk attitude on family assets allocation. We find that the improvement of the spouse's education level has a significant influence in promoting family participate in the risk market. The spouse's risk attitude has a significant impact on the family's asset allocation decisions. And the members with different educational levels have a difference in the weights of asset allocation. Under similar average education level, families with higher education levels gap will be more active in risky asset markets investment. In control variables regression results, the householder's age has a nonlinear effect on the family risky assetss investment. Family with higher householder's education level are more active in the risky assets market. Family income and wealth also have a significant positive effect on household risky assetss investment.

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