Analysis on Regional Differences and Influencing Factors of Household Asset Allocation in China

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Abstract: Households participate in financial activities through asset allocation, which will not only maintain and increase the value of household assets, but also have a significant impact on China's economic and financial development. China has a vast territory and obvious regional characteristics, and there are significant differences in economic structure and urbanization level among the eastern, central and western regions. Under this background, the development of family finance among regions is also unbalanced. After summarizing the macro characteristics of household asset allocation in China, this paper makes a micro empirical study of urban households in China with the help of China Household Financial survey database, and explores the regional differences between the eastern region and the central and western regions from different perspectives, by using the Tobit model. The empirical analysis results show that the proportion of stable holding in the eastern region is significantly lower than that in the central and western regions, and households in the eastern region have a greater preference for risky financial assets.

1. Introduction
Traditional financial research mainly focuses on the interaction among enterprises, financial markets and financial intermediaries, but as the basic unit of economic society, family is a very important consumer of financial products. The household economic behaviour also affects the scale of financial development and the form of financial asset portfolio, further affects the distribution of social wealth and the gap between the rich and the poor. Since China's reform and opening up, the level of household income and the stock of financial assets have increased significantly. The total economic size of urban households has become the most important part of the national economy together with the government and enterprises. Bank deposit is no longer the only choice for families to consider the allocation of financial assets. Families begin to maximize their income through the optimal allocation and structural adjustment of assets. The financial investment demand of families becomes one of the main variables affecting the growth of national economy. However, due to the late development of China's financial industry and the lack of micro data of family finance, in-depth research on family finance has been limited. Since 2010, the China family finance investigation and Research Center, jointly established by Southwest University of Finance and economics and the Financial Research Institute of the head office of the people's Bank of China, started to collect relevant information on the micro level of China's family finance nationwide and establish a basic database in this field.

On this basis, many scholars have conducted empirical research based on nationwide survey data to analyze the influencing factors of China's household asset allocation. China has a vast territory and obvious regional characteristics, and there are significant differences in economic structure and urbanization level among the eastern, central and western regions. Under this background, the development of family finance among regions is also unbalanced. What are the significant variables that
affect household asset allocation in different regions? How are the similarities and differences among regions reflected? What are the reasons for the differences? This paper attempt to explore this issue from these perspectives.

2. Regional Differences of Household Asset Allocation in China

The regional differences of household asset allocation are mainly compared from the possibility of household participation in allocation and the structural proportion of allocation in different regions. According to the survey data, the possibility of households participating in the allocation of risk assets in the eastern, central, and western regions of China is decreasing, as shown in Figure 1.

Figure 1. The possibility of households participating in the allocation of risk assets in different regions

In the eastern region, 8.48% of households participate in the risk financial market and allocate their assets; less than one-half of households in the eastern region participate in the risk financial market, there is only 4.03% of households in central region allocate their financial assets; in the western region, the proportion of households participating in the risk financial market is the lowest, only 1.58% of households participate in the risk financial market. This shows that there are differences in the participation rate of household asset allocation among regions.

As a whole, the participation rate of households in the risk financial market in the eastern region is the highest. However, there are still 91.52% of eastern households have not participated in the risky financial market, and household asset have not been properly allocated, especially in the central and western regions. Therefore, from a national perspective, there are different possibilities for households in different regions to allocate financial assets, and there is an imbalance in the development of household finance between regions. In addition, this reveals that China's households have serious shortages of participation in the risky financial market, and the possibility of households' allocation of financial assets is low.

As for the asset allocation structure, the proportion of the financial asset allocation structure of households in the eastern, central, and western regions is shown in Table 1.

Table 1. Household asset allocation structure in different regions

| Region          | Assets Mean (Yuan) | Risk-free assets Mean (Yuan) | Proportion | Risk assets Mean (Yuan) | Proportion |
|-----------------|--------------------|------------------------------|------------|-------------------------|------------|
| Eastern district| 8053               | 6392                         | 79.37%     | 1661                    | 20.63%     |
| Central district| 4576               | 4159                         | 90.87%     | 418                     | 9.12%      |
| Western district| 2416               | 2321                         | 95.93%     | 981                     | 4.07%      |
3. Influencing Factors of Regional Differences in Household Asset Allocation

3.1 Income and Wealth Level
The most basic condition for family to allocate financial assets is to have certain income and wealth, which is the material basis for family assets allocation. Generally speaking, the higher the income level, the more wealth the family has accumulated. When facing the same amount or proportion of economic losses, the family would have a stronger ability to resist risks. There are differences in the economic development level of the East, central and western regions. It is generally believed that the development level of the East is better than that of the central and western regions. Compared with the central and western regions, the production capacity and operation status of industries or enterprises in the eastern region are relatively good, and the higher the wage income level in the region, the better the economic situation of the Eastern families will be, so the family's ability to resist risks is stronger.

In asset allocation, households with low income and wealth tend to choose risk-free and stable financial assets, i.e. they mainly choose cash and savings deposits. While for families with higher income and wealth level, their risk tolerance is higher. When these families hold enough safe financial assets, they will prefer assets that can bring high returns, such as stock funds, etc., which are more willing and able to optimize the structure of family assets.

3.2 Characteristics of Householder
(1) Gender
The gender difference of the householder will affect the preference and choice of different kinds of financial products in the allocation of financial assets. In the investment behaviour of the stock market, men are more likely to hold stocks and participate in the risk asset market, and they also pay more attention to the diversification of financial asset structure. On the contrary, female investors are more inclined to the investment direction with more risks and stable returns.

(2) Marital status
The influence of the marriage status of the householder on the allocation of family assets is mainly in the following two aspects. On the one hand, if a married investor has a stable source of income, the family’s stock of family assets will be relatively high, so they are more likely to participate in the financial market. However, on the other hand, in terms of the family's economic burden, married investors need to bear more economic expenses such as children's education expenses and household daily expenses. Under the same income level, married investors tend to choose products with low risk level and stable income when choosing household asset types.

(3) Educational background
Some research shows that the education background of family members is positively related to the proportion of risk assets held by families. On the one hand, the higher the education level of investors, the greater the competitive advantage in the employment market, the easier to get jobs with higher income level, and the higher the family income, the greater the total amount of family assets would be. On the other hand, the more educated the investors are, the more likely they are to be exposed to rich financial knowledge. When allocating family assets, they are able to fully understand and evaluate various financial products, and distribute risks through the allocation of diversified financial assets to obtain reasonable and higher investment income.

(4) Risk attitude
The risk attitudes held by investors in financial markets have a significant impact on the allocation of household asset. Families with high risk tolerance will choose higher-yielding financial products when they are allocating assets and are willing to bear higher risks. On the contrary, risk-averse investors tend to choose financial products with a higher safety factor when allocating household asset, so they will avoid risks and protect the safety of household assets, so the possibility that they choose diversified financial products to optimize the asset structure is very low.
3.3 Social Factors

(1) Regional economic development level

The level of economic development in the investor’s area has an important impact on the allocation of household asset. Firstly, in areas with high economic development, the overall income level of residents is relatively high, and family members are optimistic about the future increase in family wealth, and have the will and ability to optimize the allocation of household asset. Secondly, the financial industry services in developed regions are also relatively rich and convenient, making it easier for residents of the region to access various financial products. There are large differences in the level of financial development in China's eastern, central and western regions. The financial development level in the eastern region is generally higher than that in the central and western regions, showing an imbalance between regions.

(2) Economic policy

Family investors will choose or adjust their investment strategies according to different economic policies. When the social and economic environment is relatively stable, investors can grasp the overall trend and changes of the economic operation more accurately and in a timely manner, which can help them invest in financial assets more reasonably. This shows that the social economic environment and economic policies will affect the family's financial investment behaviour in different aspects, including social development expectations, income levels and future employment, etc. The monetary policy of the central bank will directly and significantly affect the price of financial assets, while the family investors generally adjust and choose their financial investment decisions through the changes in the price of financial assets, so the monetary policy of the central bank has a significant impact on the decision-making of family assets investment.

4. Empirical Analysis of Regional Differences in Household Asset Allocation

4.1 Data Sources

At present, China has not yet established a unified statistical data on household asset, so this paper uses the data published in China's Household Financial Survey (CHFS) as the data source. The database is a nationwide sample survey involving 25 provinces (including autonomous regions and municipalities) in the East, Central and West, 80 counties and 2237 households. The survey covers demographic characteristics (such as age, gender, work, etc.), household assets and liabilities (such as current deposits, fixed deposits, stocks, bonds, funds, etc.), insurance and security (such as participation in social security and commercial insurance), expenditure and income (such as consumption expenditure, transfer expenditure, etc.).

4.2 Index System

In the data sample, we exclude residents with rural household registration, age less than 16 years old, and income less than 1,000 Yuan. After sample selection, 1931 samples were retained, including 1169 samples from the eastern region, 591 samples from the central region, and 171 samples from the western region.

In terms of micro influencing factors, population characteristics, economic situation, insurance guarantee, and behaviour characteristics basically cover the important factors that affect residents' investment decision-making. Therefore, this paper constructs an index system for measurement and analysis based on these four aspects. In the constructed measurement system, the demographic characteristics are mainly included in four indicators: age, gender, education, political outlook, etc.; the economic situation includes the industry and income of the respondents, of which the income has the greatest impact; Insurance guarantee can reduce the uncertainty of the family, improve the level of self-protection, and improve the risk tolerance of investment, including whether there is medical insurance, whether there is self-owned house, children's willingness to go abroad, health status, etc.; the behavioural characteristics are the risk preference and expectation of households, including risk attitude.
and expectation of future economic situation, which will directly affect household asset allocation behaviour. The index system of regional differences in household asset allocation is shown in Table 2.

Table 2. Index system of regional differences in household asset allocation

| Variables          | First level indicators | Second level indicators | Description                                      |
|--------------------|------------------------|-------------------------|--------------------------------------------------|
|                    | Demographic characteristics (D) |                         |                                                  |
|                    | Age (age)              | Actual age              |                                                  |
|                    | Gender (gender)        | Male=1, female=0        |                                                  |
|                    | Years of education (edu) | 0, 5, 9, 12, 14, 15, 16, 19, 22 |                       |
| Economic situation (E) | Income (inc)           | Level 1-5, from low to high |                        |
|                    | Medical insurance (sec) | Yes=1, no=0             |                                                  |
|                    | Housing provident fund (fund) | Yes=1, no=0             |                                                   |
|                    | Self-owned housing (hou) | Yes=1, no=0             |                                                  |
|                    | Children go abroad (child) | Yes=1, no=0             |                                                  |
| Insurance guarantee (I) | Health (hea)          | Level 1-5, from good to bad |            |
| Behaviours (B)      | Risk attitude (risk)   | Level 1-5, from high to low |                            |
|                    | Economic expectation (exp) | Level 1-5, from high to low |                          |
| Robust assets (y1)  | Cash held              | Proportion in total assets |                              |
|                    | Savings deposit        | Proportion in total assets |                             |
| Risk assets (y2)    | Bank financing         | Proportion in total assets |                              |
|                    | Stock                  | Proportion in total assets |                               |
|                    | Fund                   | Proportion in total assets |                                |
|                    | Bond                   | Proportion in total assets |                                 |
|                    | Other                  | Proportion in total assets |                                 |

The statistical description of the sample variables in the eastern, central and western regions is shown in Table 3.

Table 3. Index system of regional differences in household asset allocation

| Variables | Nationwide | Eastern region | Central and western region |
|-----------|------------|----------------|---------------------------|
|           | Mean | Minimu m | Maximu m | Mean | Minimu m | Maximu m | Mean | Minimu m | Maximu m |
| y1        | 0.83 | 0   | 1   | 0.82 | 0   | 1   | 0.88 | 0   | 1   |
| y2        | 0.14 | 0   | 1   | 0.15 | 0   | 1   | 0.12 | 0   | 1   |
| age       | 40.07 | 16  | 90  | 39.52 | 16  | 79  | 41.34 | 20  | 90  |
| gender    | 0.55 | 0   | 1   | 0.55 | 0   | 1   | 0.58 | 0   | 1   |
| edu       | 12.20 | 0   | 22  | 12.24 | 0   | 22  | 12.18 | 0   | 19  |
| inc       | 36929.2 | 1000 | 100000  | 44575.9 | 1000 | 100000  | 23621.19 | 1000 | 100000  |
| sec       | 1.10 | 0   | 1   | 1.08 | 0   | 1   | 1.12 | 0   | 1   |
| fund      | 0.44 | 0   | 1   | 0.42 | 0   | 1   | 0.41 | 0   | 1   |
| hou       | 0.88 | 0   | 1   | 0.85 | 0   | 1   | 0.89 | 0   | 1   |
| child     | 0.25 | 0   | 1   | 0.26 | 0   | 1   | 0.28 | 0   | 1   |
| hea       | 2.36 | 1   | 5   | 2.33 | 1   | 5   | 2.42 | 1   | 5   |
| risk      | 3.55 | 1   | 5   | 3.48 | 1   | 5   | 3.46 | 1   | 5   |
| exp       | 2.28 | 1   | 5   | 2.38 | 1   | 5   | 2.18 | 1   | 5   |
It can be seen from Table 3 that there are very obvious differences between the eastern region and the central and western regions in the above variable system. The average ratio of risk financial assets in the eastern region is higher than that in the western region, and the average ratio of stable financial assets is lower than that in the central and western regions; The average age of the families interviewed in the eastern region is about 2 years younger than that in the western region; percentage of men is higher in the central and western region than eastern region; the eastern region is higher than the central and western regions in terms of medical insurance, housing provident fund, and housing ownership, and the risk attitude is more radical, and it is more optimistic about future economic expectations.

4.3 Model Building
This paper adopts the Tobit model for empirical analysis. Tobit model is also called sample selection model or restricted dependent variable model. It is mainly used to study a variable although it is continuously distributed in the maximum probability, but there is still a certain positive probability when the value is zero. At this time, there will be deviations when using the traditional classic regression model for analysis. Although a large proportion of households have financial asset allocation, there are still households with zero financial assets. They allocate assets in the non-financial asset area.

The Tobit model is generally defined as a latent variable model as follow:

\[ Y^* = \beta_0 + \beta_1X + \mu \]
\[ Y = \max(0, Y^*) \]

While \( Y^* > 0 \), then \( Y = Y^* \); while \( Y^* \leq 0 \), then \( Y = 0 \).

According to the research content of this article, the Tobit model of the household assets in China is built as follow:

\[ y = \begin{cases} 
  y_{1,2}^* = \beta_0 + \beta_1D + \beta_2E + \beta_3I + \beta_4B + \mu, & y_{1,2}^* > 0 \\
  0, & y_{1,2}^* \leq 0 
\end{cases} \]

4.4 Empirical Analysis Results
The empirical analysis results of proportion of assets held by robust households in different regions is shown in Table 4.

| Variables | Nationwide | Coefficient | t value | P value | Eastern region | Coefficient | t value | P value | Central and western region | Coefficient | t value | P value |
|-----------|------------|-------------|---------|---------|----------------|-------------|---------|---------|---------------------------|-------------|---------|---------|
| age       | -0.011     | -3.65       | 0.000   | -0.011  | -3.14          | 0.002       | -0.012  | -2.05   | 0.043                     |              |         |         |
| gender    | 0.109      | 1.89        | 0.062   | 0.153   | 2.15           | 0.034       | -0.003  | -0.03   | 0.979                     |              |         |         |
| edu       | -0.042     | -3.36       | 0.000   | -0.037  | -3.26          | 0.002       | -0.059  | -1.12   | 0.002                     |              |         |         |
| inc       | -0.097     | -2.38       | 0.016   | -0.126  | -3.12          | 0.003       | -0.146  | -2.15   | 0.031                     |              |         |         |
| sec       | 0.179      | 1.78        | 0.076   | 0.237   | 2.03           | 0.045       | -0.009  | -0.05   | 0.962                     |              |         |         |
| fund      | -0.188     | -2.79       | 0.006   | -0.223  | -2.76          | 0.005       | -0.135  | -1.11   | 0.268                     |              |         |         |
| hou       | -0.189     | -2.09       | 0.039   | -0.199  | -1.86          | 0.065       | -0.201  | -1.12   | 0.265                     |              |         |         |
| child     | -0.058     | -0.96       | 0.342   | -0.086  | -1.12          | 0.265       | -0.043  | -0.37   | 0.702                     |              |         |         |
| hea       | -0.077     | -2.21       | 0.029   | -0.098  | -2.26          | 0.024       | -0.065  | -1.08   | 0.279                     |              |         |         |
| risk      | 0.129      | 5.19        | 0.000   | 0.138   | 4.52           | 0.000       | 0.123   | 2.88    | 0.004                     |              |         |         |
| exp       | -0.057     | -1.85       | 0.065   | -0.026  | -0.68          | 0.492       | -0.105  | -1.78   | 0.076                     |              |         |         |

Based on empirical analysis results, overall, in terms of the proportion of stable financial assets held, age, gender, years of education, income, whether they have medical insurance, whether they have their
own houses, health status, risk attitude, and prediction of the economic situation all significantly affects the proportion of residents holding stable financial assets. Whether the children go abroad has no significant impact on the allocation of stable financial assets. In terms of age, the proportion of senior investors' stable financial assets will be reduced. For every one-year increase in age, the allocation of urban households to stable financial assets decreased by an average of 1.2 percentage points. In terms of gender, investment in households by male residents will have a positive impact on stable financial assets, with male investors generally 11 percentage points higher than women. In terms of education, with the increase in education, the allocation of stable financial assets decreases. As income grows, the allocation of sound financial assets will also decrease. Possessing medical insurance will have a positive impact on the allocation of stable financial assets. While possessing housing provident fund and self-owned housing will have a negative impact on stable financial assets. Health status will have a positive impact on the allocation of stable financial assets. Generally speaking, for each level of health improvement, the allocation of stable financial assets will increase by 7.6 percentage points. The risk attitude is inversely proportional to the residents' stable asset allocation. The high-risk and high-return residential households have a lower proportion of stable financial assets. The worse the expectations of the economic situation, the less the allocation of stable financial assets. It is expected that the proportion of stable financial assets will increase by 5.9 percentage points for each additional level. In general, whether there is a self-owned house, whether there is a housing provident fund, whether there is medical insurance, risk attitude, gender and income have the greatest impact on stable financial assets.

From a regional perspective, the eastern region and the central and western regions are quite different in the factors and degree of influence on the proportion of stable financial assets. In the Eastern region, risk financial assets are affected by age, gender, education period, income, medical insurance, housing fund, whether there is own house, whether children go abroad, risk attitude and economic expectation for the future. In the central and Western regions, it is mainly influenced by education, income, risk attitude and economic expectation. In terms of influence degree, the main influencing factors are whether there is housing fund in the eastern region and whether there is self-owned real estate which has an influence coefficient of more than 0.2 on risk financial assets. While in the central and Western regions, the influence coefficients of these two factors are also very large, but they are not significant. In terms of education, the proportion of risk financial assets held in the eastern region will increase by 3.6 percentage points and that in the central and western regions will increase by 5 percentage points every year when the number of years of education is increased. For each level of income increase, the proportion of risk financial assets held in the eastern region increased by 12 percentage points, and that in the central and western regions increased by 19 percentage points. In terms of risk attitude, the higher the risk-based financial assets held by residents with high risk and high return, and the same sensitivity to risk attitude between the eastern region and the central and western regions. The worse the economic expectation for the future is, the lower the proportion of risk financial assets is, and the central and western regions are more sensitive to the changes of future economic situation, with a coefficient of 3.5 times that of the eastern regions.

5. Conclusion
Strictly speaking, the allocation of household asset belongs to the behavior of micro-resident families or micro-individuals who have the economic decision-making power of the family, and will be affected by demographic characteristics, economic conditions, insurance protection, and behavior characteristics. Due to the differences in economic development, financial development, and cultural environment in the eastern region and the central and western regions, the differences in the allocation of household asset are very obvious.

After summarizing the macro characteristics of household asset allocation in China, this paper makes a micro empirical study of urban households in China with the help of China Household Financial survey database, and explores the regional differences between the eastern region and the central and western regions from different perspectives, by using the Tobit model. The empirical analysis results have the following conclusions:
(1) From the perspective of total asset amount, all kinds of household asset in the eastern region are significantly higher than those in the central and western regions, and the average of the total size of individual household asset is about twice that of the central and western regions.

(2) From the perspective of asset structure, the proportion of stable holding in the eastern region is significantly lower than that in the central and western regions, and households in the eastern region have a greater preference for risky financial assets.

(3) From the perspective of income, the average scale of financial assets of households in different income groups in the eastern region is significantly higher than that in the central and western regions, and the gap is growing with the increase of income levels.

(4) From the perspective of risk attitude, the risk attitude structure of households in the eastern region and the central and western regions is similar, but under the unified risk attitude, the allocation of risk assets of households in the eastern region is significantly higher than that in the central and western regions, indicating that households in the eastern region are more inclined to the allocation of risk assets.

(5) From the perspective of gender, women in the eastern region have a higher degree of control over family assets, while men in the central and western regions are more able to bear high risks than those in the eastern region.

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