

# The Impact of Household Asset Allocation on the Heterogeneity of Residents' Consumption Based on CFPS Micro Data

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**Abstract:** In response to the impact of household asset allocation on residents' consumption heterogeneity, this article first uses the China Family Panel Studies (CFPS) to conduct preliminary analysis and statistics, and selects some control variables. Secondly, the instrumental variable method is used to study the total consumer expenditure of residents and determine the feasibility of controlling variables. Finally, based on this, the instrumental variable method is used to study the secondary and tertiary indicators of asset allocation and the secondary indicators of consumer expenditure, and the model is tested to determine the impact of household asset allocation types on residents' heterogeneous consumption. The research draws the following conclusions: (1) The average marginal utility of household physical asset holdings on consumption is slightly greater than the marginal utility of financial assets. (2) Household cash and deposit holdings have a more obvious marginal utility on consumption than their holdings of financial products. (3) The positive impact of the total purchase price of a family car on medical, entertainment, and home expenses is significantly greater than its impact on clothing, food, housing, and transportation expenses.

**Keywords:** Household asset allocation, Resident consumption, Family finance.

## 1. Introduction

Since the report of the 19th National Congress of the Communist Party of China stated that "China's economy has shifted from a stage of high-speed growth to a stage of high-quality development", residents' income has generally increased. According to statistics from the National Bureau of Statistics, the disposable income of residents in China reached 35128 yuan in 2021, an actual increase of 8.1% compared to the previous year after deducting price factors. While households are generally sharing income growth, their investment in financial markets and physical assets is also constantly expanding. As the main source of China's capital market, household assets reflect the differences in investment portfolios among households, and have a significant impact on the asset allocation situation in the Chinese market. The risks and benefits brought by different asset allocation combinations will have a further impact on residents' consumption expenditures. Therefore, exploring the allocation of household financial assets and analyzing the influencing factors and mechanisms of residents' consumption is of great significance for China to further promote domestic demand and consumption upgrading, enhance residents' happiness, and maintain social stability.

Consumption theory has been in existence since the period of mercantilism, until the 1930s to 1970s, when modern consumption theory represented by Keynes' absolute income hypothesis emerged, leading to widespread academic attention. The relative income hypothesis, life cycle hypothesis, and persistent income hypothesis, represented by Dushenberry, Modigliani, and Friedman, have continuously emerged, laying the main analytical framework for studying household consumption issues. With the advent of Makowiz (1952) mean variance portfolio selection theory and Merton (1971), Fama (1992) and other assumptions gradually relaxed, modern portfolio theory was formed [3-5]. The effectiveness

of household investment portfolios will have a significant impact on the property income, wealth accumulation, and social distribution of households (Wu Weixing et al., 2015), and it is also the main cause of household income inequality (Zhang Zhe, 2020) [6-7].

In terms of financing channels, there are differences in the choices of formal, informal, and mixed financial channels among those with different social capital. Some scholars have conducted empirical analysis and found that at present, the most households choose mixed financing channels for borrowing. However, if they can only choose a single channel, most households still tend to prefer informal financing channels (Wang Jia, 2016) [8], and this result is particularly evident in rural areas. Due to the relatively lagging development of rural areas at present, farmers still prefer informal financial institutions for financing, such as borrowing from relatives and friends, followed by formal financial institutions (Ding Zhiguo et al., 2011) [9].

In terms of asset allocation, in recent years, with the rise of housing prices, some scholars have proposed distinguishing between physical assets represented by real estate and financial assets in household assets (He Yang et al., 2016) [10]. In terms of financial assets, the allocation of household risky financial assets and high liquidity financial assets will have a wealth effect, significantly affecting consumption levels and upgrading their household consumption structure (Zhang Zhe, 2020) [7]. At the same time, by exploring financial products represented by stocks, it was found that the increase in wealth invested by residents increases the probability of residents participating in the stock market, and also increases the depth of residents' participation in the stock market (Wu et al., 2007) [11]. However, as for physical assets with real estate as the main research object, the current empirical research on its promoting and inhibiting effects on residents' consumption is still in debate and has not formed a consensus. Some scholars, from the perspective of household debt, believe that rising

housing prices have a promoting effect on household consumption (Kartashova et al., 2017; Zhang Hao et al., 2017) [12-13]. Some scholars have used municipal data to prove that housing prices have a significant inhibitory effect on household consumption (Tian Longpeng et al., 2019; Waxman et al., 2018) [14-15]. Some scholars have found through empirical research that the results of rising housing prices in different regions are different, with a stronger wealth effect on the eastern region than the whole country, while the central region exhibits a crowding out effect (Zhang Shujuan et al., 2022) [16].

## 2. Data Source and Variable Selection

### 2.1. Data Source

This article uses data from the China Family Panel Studies (CFPS) for research. It should be noted that due to significant differences in the data involved in this article, standardized processing is carried out uniformly, and the answers to "none" in the CFPS survey database are uniformly converted to 0. Preliminary cleaning of the obtained data resulted in 14218 valid samples.

### 2.2. Variable Selection

#### 2.2.1. Explanatory variable

Due to the study of consumption heterogeneity in this article, the household consumption expenditure component in CFPS was chosen as the explanatory variable. At the same time, in order to further study it, it is divided into two secondary indicators: "clothing, food, housing, and transportation expenses" and "medical, entertainment, and home expenses".

#### 2.2.2. Core explanatory variables

Firstly, since the core explanatory variable of this article is "household asset allocation behavior", which is a total index composed of multiple indicators, multiple influences should be considered. Secondly, based on the physical properties of household assets, this article divides them into two secondary indicators: "physical assets" and "financial assets" for further research. Finally, by segmenting the two and combining existing data, the physical assets are refined into durable

consumer goods such as real estate and agricultural machinery, as well as movable assets such as automobiles; Refine financial assets into low-risk cash deposits, high-risk financial products, loans to relatives and friends, and operational assets invested in individual or private enterprises. These are the seven three-level indicators of asset allocation.

#### 2.2.3. Control variables

In addition to the core variables, it is also necessary to control for other factors that affect family base market participation and financial asset allocation. Due to the significant impact of the respondents' family composition on their asset allocation, the number of family members and marital status should be controlled. Marital status: 0 for unmarried, 1 for married, cohabiting, or divorced, and 2 for widowed.

At the same time, due to the significant impact of personal and family education on their investment direction and types, the highest personal education level is selected as the control factor and controlled. Education: Not having undergone compulsory education is recorded as -, achieving secondary education level (junior high school, high school, junior college) is 1, and achieving higher education level (undergraduate and above) is 2.

## 3. Empirical Analysis Results

### 3.1. Descriptive statistical analysis of variables

According to the sample provided by CFPS, there is a significant wealth gap among households in China, with significant differences in net assets and total property value. At the same time, compared to high-risk financial products, residential households are still more inclined to hold risk-free financial assets such as cash deposits, and their participation in the financial market is insufficient. In addition, there is a significant difference in the amount of loans made by households to their relatives and friends, with an overall average of negative. However, there are also a few households with large amounts of external loans, resulting in a significant wealth gap. The variable symbols, definitions, and descriptive statistical analysis are shown in Table 1.

**Table 1.** Variable Description and Descriptive Statistical Results

Variable	Mean	S.D.	Min	Max	Sample size
Value of operating assets (X1)	2.88	62.75	0.00	5000.00	14218
Loan to relatives and friends (X2)	-3537.61	129451.30	-2799992.00	8000024.00	14218
Total value of cash and deposits (X3)	55765.23	175498.80	0.00	7000000.00	14218
Total holding price of financial products (X4)	10503.51	147714.90	0.00	10000000.00	14218
Total Family Property Value (X5)	669185.50	1601273.00	0.00	50300000.00	14218
Total value of agricultural machinery (X6)	1857.28	12165.72	0.00	700000.00	14218
Car purchase price (X7)	5266.86	31325.89	0.00	1500000.00	14218
Household Consumer Expenditures (X8)	55587.92	71278.17	0.00	1820360.00	14218
Number of households (X9)	3.56	1.91	1.00	21.00	14218
Marital status (X10)	0.73	0.57	0.00	2.00	14218
Education (X11)	0.64	0.59	0.00	2.00	14218

### 3.2. The impact of the overall indicators of asset allocation on the total consumer spending of households

This article studies the impact of household asset allocation on household consumption levels. Firstly, household assets

are divided into physical assets and financial assets based on their physical attributes, and are represented by  $y = \beta_0 + \sum \beta_i X_i + \epsilon$ . Use it as the benchmark model and perform regression. Then, the instrumental variables marriage, education level and the number of family members are introduced to carry out the control variables regression. The final results are shown in Table 2.

**Table 2.** Regression results of instrumental variable method for secondary indicators of asset allocation on consumer spending of households

Variable	(1)	(2)
	Nonproductive expenditure	Nonproductive expenditure
Financial assets	0.0105*** (0.0003)	0.00966*** (0.0003)
Real asset	0.0307*** (0.0021)	0.0284*** (0.0021)
Marital status		-2091.6* (976.4360)
Education level		13759.2*** (831.6830)
Number of family members		4900.1*** (294.4538)
N	14218	14218
R2	0.100	0.131
adj. R2	0.100	0.131
F	793.51	427.86

**Note:** The standard deviations reported in parentheses are: \*, \*\*, and \*\*\* respectively indicate significant differences on the basis of 5%, 1%, and 0.1%.

Firstly, the empirical results validate the effectiveness and necessity of the instrumental variable method. The statistical results of the basic model and the inclusion of control variables are relatively large, indicating that the classification of "financial assets" and "physical assets" is appropriate as instrumental variables for consumer spending. Secondly, after the control variable is added, the R value is further increased compared with the basic model, so the control variables can be considered for subsequent operations. Finally, the control variables selected in this article have a significant impact on household consumption, including participation in the household financial market and the selection of financial asset types. Based on the above information, this article finds that:

(1) With the improvement of family education level, it is easier to overcome the information cost in the financial market [17], and its participation in the financial market and

the allocation of physical assets show significant positive effects.

(2) The expansion of family size has a positive impact on household asset allocation, which may be due to the increase in labor income and wealth accumulation brought about by the increase in family members, leading to a further increase in asset allocation.

(3) Marriage has a negative effect on asset allocation, which may be due to the fact that marriage leads to a higher general dependency ratio (the proportion of elderly and children to young and middle-aged labor force), especially the phenomenon of widowhood, which puts greater pressure on the core labor force and makes it more conservative in asset allocation, while also being more cautious about household consumption expenditures.

**Table 3.** The instrumental variable regression results of the three-level indicators of asset allocation on various consumer expenditures of households

Variable	Nonproductive expenditure	Nonproductive expenditure	
		Clothing, food, housing, and transportation	Medical, entertainment, and home
X1	0.00247 (0.0018)	0.00213 (0.0017)	0.000836 (0.0005)
	0.00630 (0.0070)	0.00680 (0.0052)	0.00107 (0.0030)
X3	0.0411*** (0.0094)	0.0269*** (0.0067)	0.0139*** (0.0035)
	0.0218*** (0.0054)	0.00312 (0.0062)	0.0160*** (0.0029)
X5	0.00833*** (0.0012)	0.00651*** (0.0010)	0.00289*** (0.0004)
	0.104 (0.0592)	0.0773 (0.0446)	0.0159 (0.0153)
X7	1.213*** (0.0666)	0.186*** (0.0394)	1.081*** (0.0103)
	Control Yes	Control Yes	Control Yes
N	14218	14218	14218
R2	0.413	0.160	0.714
adj. R2	0.413	0.160	0.714
F	139.10	92.21	1243.04

**Note:** The standard deviations reported in parentheses are: \*, \*\*, and \*\*\* respectively indicate significant differences on the basis of 5%, 1%, and 0.1%.

### 3.3. The impact of sub indicators of asset allocation on household consumption expenditure

Due to the multifaceted nature of household asset allocation, in order to further examine the different dimensions of asset allocation and the types of consumer expenditures, seven secondary indicators, namely the total value of household property, the total value of cash and deposits, the total holding price of financial products, the total value of agricultural machinery, the purchase price of automobiles, the value of operating assets, and the amount lent to relatives and friends, were introduced into the first level indicators of physical assets and financial assets. At the same time, consumer expenses are divided into daily necessities such as clothing, food, housing, and transportation, as well as special expenses such as medicine, entertainment, and home furnishings. Finally, the instrumental variable method regression results are shown in Table 3.

The primary indicators (financial assets, physical assets) and secondary indicators of household asset allocation have a significant positive impact on consumer spending and its primary indicators (clothing, food, housing, transportation, medicine, entertainment, and home expenses).

For the overall indicator of consumer spending, first of all, the average marginal utility of physical assets is slightly greater than the marginal utility of financial assets. This may be because Chinese households are more cautious in the allocation of physical assets, and the corresponding impact on consumer spending is also more profound, while the allocation of financial assets is more considered after the balance of physical asset allocation. Secondly, as a secondary indicator of physical assets, the average marginal utility of automobile purchase price on consumer spending is relatively large. Once again, the total value of cash and deposits, as secondary indicators of financial assets, has a greater impact

on consumption than the total holding price of financial products that belong to the same secondary indicator. This may be due to the fact that China's financial investment system is still in the construction stage, and residents' tolerance for financial asset risks needs to be improved. Finally, the impact of the total household property value on consumption is significantly lower than the other two secondary indicators that belong to the same physical assets. This may be due to the fact that the real estate owned by the household as a whole is held for residential purposes and is not easily realized; At the same time, the overall liquidity of real estate in China is relatively weak, which has a relatively small impact on the current consumer spending needs of households.

As for the sub indicators of consumer spending, firstly, the total value of cash and deposits owned by households has a greater impact on their clothing, food, housing, and transportation expenses than on their medical, entertainment, and home expenses. This shows that cash and deposits, as highly liquid financial assets, have a significant impact on residents' basic living standards. Furthermore, the positive impact of the purchase price of a household's car on medical, entertainment, and home expenses is significantly greater than its impact on clothing, food, housing, and transportation expenses. It can be seen that in general, the higher the price of a household owning a car, the greater its investment in medical, entertainment, and home expenses as additional expenses. Finally, the total value of agricultural machinery owned by households has a significant impact on their clothing, food, housing, and transportation compared to their expenditure on medicine, entertainment, and home furnishings. This may be due to the fact that in general, households with more agricultural machinery belong to agricultural nature and are generally poorer. They invest more in basic consumption expenses and have limited ability to invest in additional expenses.

**Table 4.** The instrumental variable regression results of the three-level indicators of household asset allocation in different regions on their consumption expenses

Variable	Nonproductive expenditure		Nonproductive expenditure			
			Clothing, food, housing, and transportation		Medical, entertainment, and home	
	Rural	Urban	Rural	Urban	Rural	Urban
X1	0.00259** (0.0008)	0.00220 (0.0012)	0.00189** (0.0007)	0.00221** (0.0008)	0.000689 (0.0004)	0.000946* (0.0005)
X2	-0.0298*** (0.0072)	0.0119** (0.0045)	-0.0118* (0.0057)	0.0100** (0.0032)	-0.0158*** (0.0030)	0.00351 (0.0018)
X3	0.0393*** (0.0060)	0.0364*** (0.0035)	0.0372*** (0.0047)	0.0217*** (0.0025)	0.0123*** (0.0025)	0.0125*** (0.0014)
X4	0.0672* (0.0319)	0.0209*** (0.0037)	-0.00298 (0.0254)	0.00345 (0.0027)	0.0284* (0.0133)	0.0152*** (0.0015)
X5	0.00437*** (0.0005)	0.00835*** (0.0004)	0.00482*** (0.0004)	0.00610*** (0.0003)	0.000788*** (0.0002)	0.00316*** (0.0002)
X6	0.152*** (0.0343)	0.151 (0.0908)	0.113*** (0.0273)	0.120 (0.0650)	0.0421** (0.0143)	-0.0131 (0.0375)
X7	1.184*** (0.0181)	1.227*** (0.0222)	0.113*** (0.0143)	0.232*** (0.0159)	1.078*** (0.0075)	1.082*** (0.0092)
Control	Yes	Yes	Yes	Yes	Yes	Yes
N	6972	7246	6972	7246	6972	7246
R2	0.424	0.394	0.096	0.167	0.755	0.690
adj. R2	0.423	0.394	0.094	0.166	0.754	0.690
F	512.72	471.18	73.61	144.72	2142.56	1613.27

**Note:** The standard deviations reported in parentheses are: \*, \*\*, and \*\*\* respectively indicate significant differences on the basis of 5%, 1%, and 0.1%.

### 3.4. The impact of sub indicators of asset allocation on household consumer spending

Due to the multifaceted impact of asset allocation on different types of residents' consumption, resident households are further divided into urban and rural households according to their regional attributes. At the same time, the secondary indicators of consumer expenditure are explored to be influenced by their regional characteristics. The regression results of the instrumental variable method are shown in Table 4.

There is a significant difference in the impact of asset allocation on consumer spending between rural and urban

households. Among them, as far as the impact of loans to relatives and friends on consumer spending is concerned, the average marginal utility of rural households is negative, while that of urban households is positive. This may be because the overall income of rural households is less than that of urban households, which leads to their fear of consumption when they have more foreign debt to collect.

## 4. Further Analysis

To test the correctness of the instrumental variable regression model, this article classifies the data as a whole by province, randomly selecting two provinces, Henan and Hunan, for instrumental variable regression processing. The final results are shown in Table 5.

**Table 5.** The instrumental variable regression results of the tertiary indicators of household asset allocation for residents across the country and provinces on their consumption expenses

Variable	(1)	(2)	(3)
	China	Henan	Hunan
X1	0.00247*** (0.0007)	0.0300*** (0.0072)	0.0152* (0.0073)
X2	0.00630 (0.0036)	0.0338** (0.0106)	0.00321 (0.0208)
X3	0.0411*** (0.0028)	0.0336*** (0.0101)	0.00987 (0.0205)
X4	0.0218*** (0.0032)	0.0913** (0.0303)	0.00422 (0.0284)
X5	0.00833*** (0.0003)	0.0176*** (0.0018)	0.0335*** (0.0051)
X6	1.213*** (0.0147)	1.200*** (0.0475)	0.989*** (0.0708)
X7	0.104** (0.0378)	0.150 (0.1300)	0.0833 (0.0732)
X9	3755.1*** (243.0593)	2371.6*** (485.3988)	2586.4 (1.7e+03)
X10	-1864.9* (802.6140)	-3627.7* (1.7e+03)	-2899.8 (5.1e+03)
X11	10360.3*** (685.8835)	6417.4*** (1.5e+03)	8966.0* (4.4e+03)
_cons	22450.8*** (1.3e+03)	19941.7*** (2.8e+03)	27457.4** (8.4e+03)
N	14218	1507	415
R2	0.413	0.428	0.463
adj. R2	0.413	0.424	0.449

**Note:** The standard deviations reported in parentheses are: \*, \*\*, and \*\*\* respectively indicate significant differences on the basis of 5%, 1%, and 0.1%.

From the regression results, it can be seen that the R corresponding to the randomly selected Henan and Hunan provinces after regression <sup>2</sup> The values are relatively close to the national regression results, indicating that the instrumental variable regression method for the overall sample is effective and effective.

## 5. Conclusion

This article studies the heterogeneous impact of household asset structure on household consumption. The empirical analysis shows that, considering the overall impact of changes in the overall asset structure on consumption, the average marginal utility of household physical asset holdings on consumption is slightly greater than the marginal utility of financial assets. Among them, in terms of financial assets, household cash and deposit holdings have a more obvious

marginal utility on consumption than their holdings of financial products; In terms of fixed assets, the total purchase price of household cars has a more significant positive impact on residents' consumption compared to the value of their property and the total value of agricultural machinery. Meanwhile, its positive impact on medical, entertainment, and home expenses is significantly greater than its impact on clothing, food, housing, and transportation expenses.

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