



THE IMPACT OF HOUSING WEALTH ON HOUSEHOLD CONSUMPTION IN CHINESE URBAN HOUSEHOLDS

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Abstract

Housing is not only household consumer goods, but also an important asset of the family. In recent years, China's household housing wealth has been increasing with the growth of real estate prices. It has been extensively studied how housing wealth affects households' consumption behavior, but less is known about the varied impacts of different wealth sources on the consumption patterns of various economic classes. This study examined the degree to which housing wealth influences the consumption patterns of persons of different economic status while accounting for geographical variations. Using data from the 2011–2019, China Household Finance Survey, we used the linear mixed model estimation, Analysis of Variance (ANOVA) and regression analysis. The findings indicated that there is a significant urban-rural regional gap across China's eastern, middle, and western areas. Although it has a little impact on rural households' consumption, housing wealth has a big positive impact on urban households' consumption. Financial wealth and pension may help to offset some of the spending imbalances brought on by annual family income. Poor households are able to utilize more medical and health-care facilities because to higher pensions. To commence with, for the older population that is particularly in need of care, authorities must strengthen the social scheme.

Keywords

Housing wealth, households' consumption behavior, linear mixed model estimation, Analysis of Variance (ANOVA), regression analysis

INTRODUCTION

Household consumption is a significant indication of living quality, which may be seen as a consequence of earnings, wealth, as well as other societal

influences. Considering the consuming implications of changes in household financial and housing assets, there has been much media coverage and political economy discussion in recent times (Painter et al. (1)). The primary source of individual wealth worldwide is housing. But there are significant price fluctuations in the housing demand, which are unstable. Intellectuals and administrators are becoming more concerned about the impact of changes in home prices on the economy as a result of this (Coskun et al. (2)). Intellectuals aiming to comprehend household consumption and spending behavior are most interested in comprehending the effects of housing wealth on consumption, in addition to administrators attempting to manipulate consumption. The impact of household income on consumer spending has attracted increased policy and academic attention as a result of the huge fluctuations in trading volume and housing values over the last ten years. Many people contend that variations in housing wealth have a greater impact than alterations in the stock industry value (Huang et al. (3)). Two factors account for this: first, many individuals hold houses more than stocks; and then, advances in finance have managed to make it simpler to acquire investment income through real estate ownership. Quantitative assessments of the impact of variations within every category of wealth on consumption are necessary for an evaluation since certain elements; nevertheless, operate in a different way (Li and Zhang (4)). Hence, we investigate the impacts of housing wealth on household consumption in Chinese urban households.

The remainder of the article is divided into the following sections: section II contains a literature review, section III contains the study's methodology, section IV contains the results and discussion, and section V has the conclusion part.

LITERATURE REVIEW

In this section we review about the housing wealth on household consumption in Chinese urban households. He et al. (5) determines the causal relationship between home wealth and income using both regression discontinuity designs and "Two-Stage Least Squares (2SLS)" estimations. According to the study, China's housing bubble has increased consumption, and a 10% rise in home wealth would roughly boost consumption overall by 3%. With significant variation in family characteristics, the average marginal propensity to spend from home wealth is roughly 5 cents. Yang et al. (6) found that China's steady increase in family wealth and home ownership rates has coincided with a decline in consumption rates. They looked at China's education sector, ageing society, and future housing-market uncertainties on family consumption to understand the processes that govern household consumption behaviour. According to Chen et al. (7), the housing wealth impact on household spending in China is substantially bigger than it has been for Western nations. The greater effect is a result of structural restrictions on investment that favour ownership as well as the predominance of house in total family wealth. We also discover that consumption changes depending on the tenancy of a home. Zhang et al. (8) examines how home

features impact "subjective well-being (SWB) in China using 2011 China Household Finance Survey data (CHFS)". The data imply housing assets are the principal conduit via which dwelling features impact SWB. Home growth raises SWB, but housing debt has no effect. For low-income and eastern China households, housing wealth affects SWB more. Our outcomes suggest ways to enhance SWB in cities. In this article, Peng et al. (9) suggest that two rounds of data from the CHFS are used to evaluate how the increase in home wealth affects household spending. The empirical findings indicate that increasing house wealth not only encourages household spending but also enhances the work of use by showing that rising housing wealth increases household consumption, particularly for consumption products with larger expenditure elasticities. Wang et al. (10) first determine that urban-rural difference is a non-negligible component of total housing wealth disparity, and that rural housing wealth inequality is greater than urban. Second, the higher commercialization of housing in urban China helps urban families accumulate wealth via larger capital gains, expanding the wealth gap between urban and rural regions. Alp and Seven (11) research examine the utilisation of home loans and their influence on housing wealth disparity using information from the "2017 CHFS". In contrast, disadvantaged populations must rely on expensive market-based mortgages to fund their property purchases. As a result, they fall farther behind in terms of accumulating housing wealth. The geographical stratification of housing wealth that accompanied the urban hierarchy was also noted, and it was shown to be directly related to the kind of housing loans. Li and Zhang (12) examine the connection between shifts in asset wealth and family consumption trends in metropolitan China. We show that household expenditure, discretionary cash, economic wealth, and housing wealth in urban China have such a long-run co-integrating connection. We discover that when an external shock disturbs the co-integrated system, only housing wealth can restore the long-run equilibrium connection. The "fixed random walk theory" of consumption behaviour is further supported by our study of the "permanent-transitory variance decomposition", which shows that almost all variation in the movement of consumption is permanent (Rashed, 2021; Sturgeon, 2020; Villa, 2020).

METHODOLOGY

China has been struggling mightily to provide the appropriate living circumstances. There has been much research on the impacts of housing wealth as well as the households' consumption habits, but less is recognized about the varied influences of different wealth resources on the utilization of various economic levels. In order to study the housing wealth questionnaires in the survey, we first collect the samples using data from the 2011-2019 CHFS. The hypothesis has been further developed in accordance with this. The influence of housing wealth on household consumption is then empirically examined using analysis of variance (ANOVA) and regression analysis. The results are then examined. Therefore, the study aims to evaluate how robust such predictions are to variations from the

tendency, fluctuation, and household consumption in Chinese urban families. Figure 1 depicts the overview of research methodology.

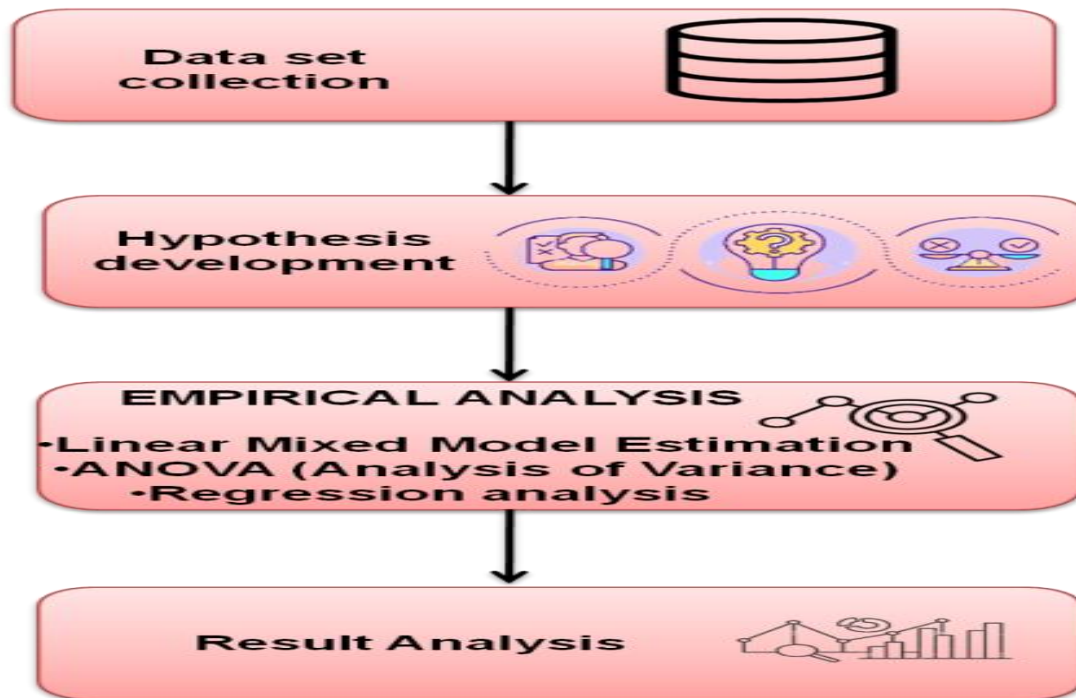


Figure1: Overview of research methodology.

A. Dataset

This article used data from the CHFS from 2011 to 2019. In general, panel data are useful for examining observations acquired for the same families across several time periods. However, only 597 senior homes were followed in our dataset. The number of monitored observations was much smaller in various geological locations, limiting the use of panel data analysis. This article employed “pooled cross-sectional data” rather than panels’ data to increase the dataset’s demographic representation. This research divided factors into five groups.

- Social and demographic data of the households, including the no. of family members live jointly, if living with “children/grandchildren, ages, gender, marital status, level of education, working status, and automobile ownership”.
- Housing size, owner-occupied housing, and housing source, owning multiple units. Owner occupancy is a significant determinant in household wealth creation, and multi-homeowner families may build greater housing wealth.
- The household’s financial information. Three main categories of family wealth were identified: pension, financial wealth, and home wealth.
- Self-reported attitude to dangers (calculated by 1–5 pts; a lower number implies a much more conservative attitude), self-rated health status (calculated by 1–5 pts; a lower number implies poorer health outcomes), personal well-being (estimated by 1–5 pts; a smaller value shows worse subjective well-being), and ageing plan, such as utilizing savings, being backed by kids, or relying on pension. Risk-averse families may save more and gain greater wealth

- Geographical data includes regions (eastern, central, and western), rural and urban regions, provinces, and cities. This work employed cities and provinces to adjust for unnoticed geological variations within region.
- Hypothesis development
- This study presents our development of the hypothesis, which is shown below:
- H1: Housing wealth influences the consumption patterns of persons with different economic status in china.
- H2: Housing wealth has a big positive impact on urban households' consumption than the rural household consumption in china.
- H3: Household wealth is greatly influenced by home ownership and real estate capital gains. Furthermore, the wealth gap between urban and rural regions becomes wider as a result of the rapid wealth accumulation of urban families caused by strong capital returns in urban area (UA).

B. Empirical analysis

This article developed a "linear mixed model (LMM)" as follows to explore the link between housing wealth, social welfare, of the households' members, and to adjust for the intra-regional disparities:

$$LhCSP_j = D + \alpha \times LnIW_j + \beta \times LnTW_j + \theta \times LnGW_j + \sum_n \delta_n Y_{n,j} + v_j \gamma_j + \epsilon_j$$

The logarithm of the household j's total housing consumption, total housing wealth, financial wealth are $LhCSP_j$, $LnIW_j$, $LnGW_j$ respectively. $Y_{n,j}$ are the controlled variables, The fixed effects parameters for "housing wealth, pension, financial wealth, and controlled variables to housing consumption (HC)" are a.b.c , respectively α , β , θ , and δ_n . The arbitrary complements to the stable variable are denoted by v_j . Stochastic effect parameter is denoted by γ_j and residual is ϵ_j . This study constructed "quantile regression models using LMM" as the reference model, where quantiles of dependent factors are function of independent factors.

IV. EXPERIMENTAL RESULT

i. Social demographic differences in the populations of various areas

Table 1 compares the various areas of China. The results of ANOVA testing show that these factors varied significantly across areas. Between areas, the average age of respondents is almost constant (66 years old). In contrast to rural regions, where male household heads make up over 70% of households, UA have a more equal distribution of household heads by gender. Due to the traditional family structure and the disparate access that men and women have to education and jobs in "rural area (RA)" China, there are significantly more homes with male heads of household. With the exception of responders in UA in the central and western regions, the majority of older people (80%) are married. Urban people have more bachelor's degrees than ruralites. Eastern cities have more bachelor's degree holders than central region and western region of cities. The percentage of the older who are still employed in UA is much lower than that in RA, and it progressively rises from the eastern to the western regions. The urban often

doesn't work after retirement and mostly depends on pension assistance. In contrast, the older in RA that choose not to work do so only when they are physically unable yet rely heavily on their income from employment. As children go to cities, their parents continue cultivating the family's land. The rural older may farm a few hours a week and feel themselves to be working. The way rural people view labour differs from urbanites. UA have less variation in family size than rural ones. Urban locations have more older people living with their children or grandchildren than rural places, and their numbers climb from east to west. Young people in RA may leave their kids with older relatives to work in cities. West has more rural migrant workers. In each location, the percentage of older people who own cars is relatively modest (15%). While it is lowest in the centre region, it is more than twice as high in urban regions as it is in rural ones. More over 90% of respondents had hukou from their community, with the percentage rising to 99% for older people living in RA. There are more senior migrants in the western area, as shown by the fact that the proportion of older persons with hukou is somewhat lower there than in the other two regions. Table 1 indicates that Chinese household head demographics by region.

Table1: Chinese household head demographics by region

Variable	Easter region		Central region		Western region		ANOVA P value
	Rural	Urban	Rural	Urban	Rural	Urban	
Age (Mean/SD)	67.4/7.3	66.0/8.8	66.7/6.3	65.8/8.5	66.6/6.3	66.7/8.9	0.000
Gender							0.000
Male (%)	72.4	47.5	79.9	49.3	75.6	53.7	
Female (%)	27.2	52.1	20.5	50.7	24.3	46.3	
Marital status							0.000
Married (%)	80.5	80.0	82.6	76.2	82.3	79.3	
Educational level							0.000
Never had education (%)	23.4	5.6	23.2	8.3	29.3	10.2	
High school or below (%)	76.2	76.7	76.5	79.4	70.0	76.6	
Bachelor or above (%)	0.9	17.5	0.9	12.1	0.5	13.4	
Working status							0.000
Still Working (%)	60.2	13.4	73.4	15.6	74.2	21.5	
No. living together (Mean/SD)	2.9/1.5	2.5/1.3	2.5/1.8	2.3/1.5	2.7/1.4	2.4/1.1	0.000
Living with (grand) children							0.000
Yes (%)	42.9	41.1	46.3	43.7	54.5	44.0	
Car ownership							0.000
Yes (%)	5.5	13.3	2.4	8.5	4.7	11.3	
Local hukou							0.000
Yes (%)	99.3	93.4	99.5	93.5	99.3	90.7	

i. Pensions, financial wealth, and housing wealth of households across regions

The home wealth, financial wealth, and pension of senior families in various areas of China are compared in Table 2. ANOVA tests show that, with the exception of social health insurance coverage, there are significant variations in these

variables across areas. The proportion of owner-occupied households is typically high (> 80%) and lower in UA than RA. The average size of a contemporary urban home is smaller than in rural locations, growing from east to west. Each region has 15% multifamily occupancy. It is more prevalent in urban than rural areas, and older families in the central region possess a comparatively lower share of multiple homes than do households in the other two regions. Rural people own their land and construct their own homes, while urban people often do not own any property and may only buy a house on the housing market. Because of this, the proportion of work units, commodity housing, and relocation housing as housing sources is larger in urban regions than in rural ones. Additionally, compared to rural regions, urban areas have a substantially lower proportion of self-built homes. The eastern area has a higher percentage of commodity housing and relocation housing than the other two regions, indicating that the eastern region's land development market is expanding at the fastest rate. The total of the various housing sources is not near to or at 100% homeownership. Average housing costs and wealth are greatest in eastern cities. This fits China's regional economic steady growth. Growth is fastest in the east. The cost of housing varies widely, showing a wide variety of sources. Rural seniors have less housing wealth than urban. Similar relationships exist for family income, financial wealth, saving account balance, and pension. This shows the economic and social gap between urban and rural communities. Financial assistance is similar in rural and urban locations. In rural settings, children help their parents more than in cities. The traditional function of family support persists in urban and rural locations. The western area has the most government subsidies, followed by the middle and eastern regions. In rural regions, government subsidies are greater than in urban areas. The Chinese government has sought to support less-developed regions. Table 2 shows the household wealth across all areas of China in terms of housing, financial assets, and pensions.

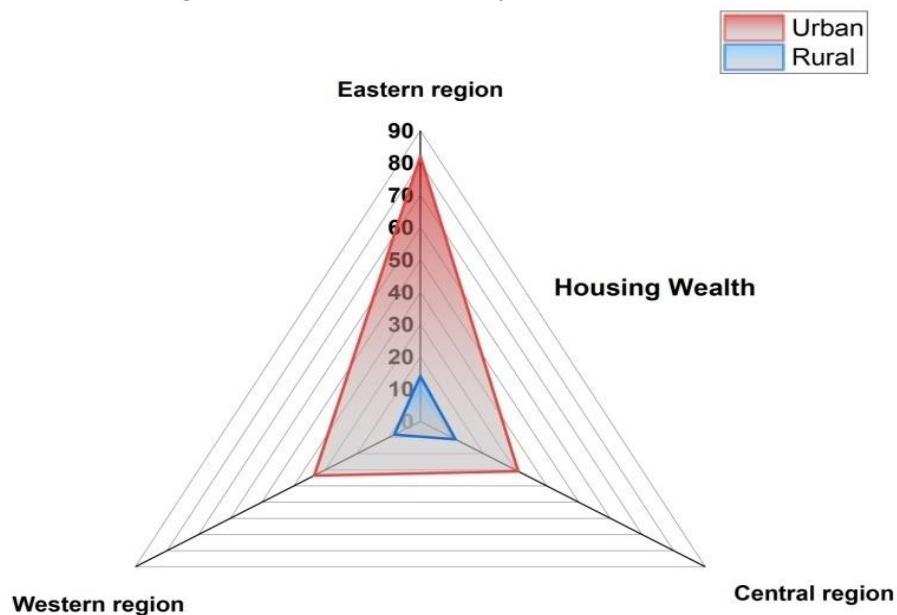


Figure 2: Comparative evaluation of housing wealth in urban and rural

Table 2: Chinese families housing, financial, and pension wealth

Variable	Eastern region		Central region		Western region		ANOVA p value
	Urban	Rural	Urban	Rural	Urban	Rural	
Annual household income (10,000 yuan/year, Mean/SD)	9.5/22.6	3.55.5	6.9/5.7	3.0/5.1	6.2/5.8	2.9/3.5	0.000
Multi-housing							0.000
Yes (%)	14.7	11.5	11.5	7.7	13.6	8.1	
Owner-occupied housing							0.000
Yes (%)	83.5	93.8	84.5	92.2	84.7	92.9	
Financial support from children							0.000
Yes (%)	26.6	39.5	32.9	40.6	28.8	30.6	
House size (m2, Mean/SD)	88.6/74.5	144.9/118.9	95.9/79.3	165.6/172.5	111.5/111.7	169.9/134.6	0.000
Pension (yuan/month, mean/SD)	2376.9/1905.0	372.4/814.5	1691.3/1496.4	165.5/492.3	1707/1443.3	200.4/505.9	0.000
Subsidies from government							0.000
Yes (%)	12.3	20.9	12.9	31.9	16.3	38.6	
Housing costs (10,000 yuvan, Mean/SD)	19.7/78.8	11.4/67.7	13.0/68.3	7.3/44.5	14.1/69.2	14.4/115.2	0.000
Financial support from others							0.000
(10,000 yuan/year, mean/SD)	0.5/1.8	0.3/0.7	0.5/1.6	0.3/0.9	0.4/1.4	0.3/1.5	
Housing source							0.000
Commodity (%)	22.6	4.5	19.2	3.5	18.5	3.3	
Work unit (%)	18.5	1.3	22.4	0.3	16.6	0.5	
Self-built (%)	11.5	58.6	14.2	62.9	14.7	58.5	
Relocation (%)	12.8	1.9	8.6	1.8	6.7	1.5	
Social medical insurance							0.153
Yes (%)	94.5	94.7	94.5	96.5	94.3	95.2	
Financial wealth							0.000
(10,000 yuan, mean/SD)	12.3/27.5	2.2/5.3	4.7/11.9	1.5/2.8	6.0/18.2	1.5/2.6	
Saving account balance (10,000 yuan, mean/SD)	5.4/13.2	1.5/2.9	2.5/5.5	1.3/2.3	3.1/8.7	1.2/1.5	0.000
Housing wealth (10,000 yuvan, Mean/SD)	82.0/121.4	14.8/33.3	30.9/44.2	11.1/41.8	33.5/46.6	8.2/20.2	0.000

The comparative analysis of the wealth of housing found in UA and RA is shown in Figure 2. When housing wealth is compared between rural and urban areas in China (eastern, central, western region), it is clear that urban areas have more wealth than rural areas.

The comparative analysis of financial wealth in UA and RA is shown in figure 3. When comparing the financial wealth of rural and urban areas in China, it is apparent that urban areas have a higher level than rural areas (eastern, central, western region).

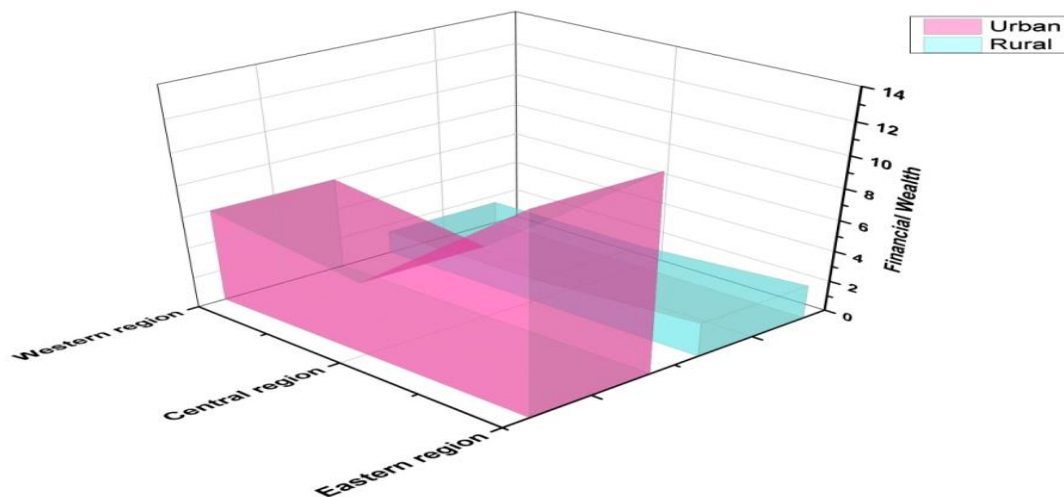


Figure 3: Comparative evaluation of financial wealth in UA and RA

Figure 4 compares UA and RA pensions. China's metropolitan pensions are far higher than rural pensions (eastern, central, western region).

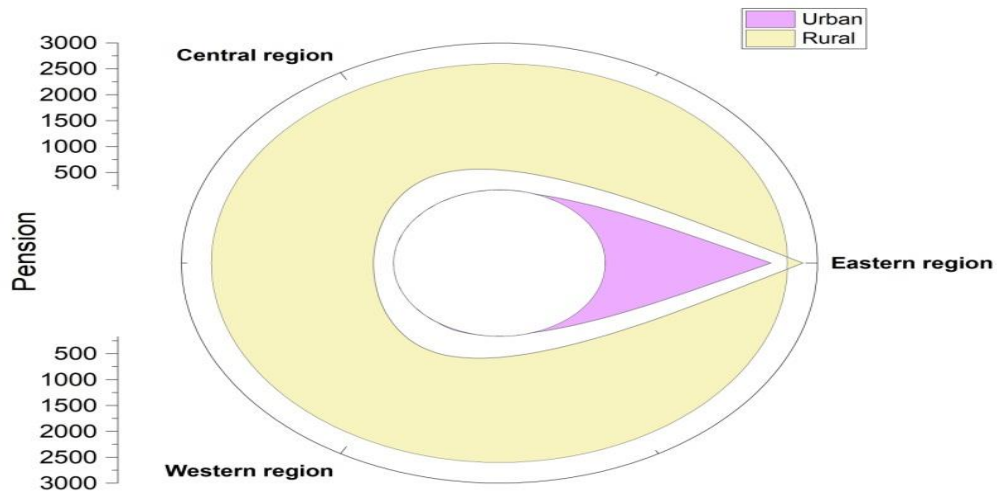


Figure 4: Comparative evaluation of pension in urban and rural

ii. Linear mixed model estimate analysis

Results of the linear mixed model estimate are shown for each area in Table 3. Financial wealth and housing wealth have a strong correlation. In the LMM study, we employed the logarithms of home wealth and financial wealth. The correlation between these two variables that we investigated had a correlation value of less than 0.20. This study developed the variance inflation factor to assess each regression model's multi-collinearity (VIF). This may be because wealthy households utilize a lesser share of medical and health care services. As housing wealth grows, wealthy households may spend more on other things, like home assets. The results show that in the middle and eastern parts of cities, housing wealth has little effect. Wealth in real estate is more helpful in the western urban zones, but it is helpful elsewhere. This suggests that increasing home wealth might raise the standard of living for people in these places. In all three areas, family income, wealth, and pension greatly impact housing expenditure. Housing household income consumption elasticity is most, followed by financial wealth; pension has the lowest. Income determines family consumption. Center urban locations have a larger consumption elasticity than central rural areas. Eastern urban residents may invest their yearly income in the property market, while rural people spend their money on non-housing spending Central region urban families depend substantially on yearly income, whereas rural households' aim is weaker. In western metropolitan regions, the annual family income consumption elasticity is equivalent to that in rural areas, showing that western households spend their money on non-housing consumption. Rural areas have a higher consumption

elasticity of financial income than urban areas, implying financial wealth affects rural households' consumption choices more. Wealth does not affect rural families' consumption in the west, indicating that they are cautious and do not plan to spend funds on non-housing consumption. Most attitudes don't affect senior consumption across geographies. This means attitude has minimal affects on non-housing consumption habits. Household wealth drives real spending.

Table 3: Estimation of LMM

Variable	Central Region		Western Region		Eastern Region	
	Rural	Urban	Rural	Urban	Rural	Urban
Attitude						
Attitude to risks	0.047	0.014	-0.014	-0.007	0.028	0.016
Health status	0.028	0.019	0.017	0.005	0.035*	0.008
Subjective well-being	0.013	-0.006	0.025	-0.007	-0.002	0.025*
Wealth						
LN_Housing wealth	0.047**	-0.008	0.036*	0.022*	0.036*	-0.003
LN_Annual income	0.164***	0.325***	0.248***	0.260***	0.328***	0.265***
LN_Financial wealth	0.100**	0.062***	0.055	0.045**	0.080**	0.045***
LN_Pension	0.030	0.028**	0.025*	0.027**	0.028**	0.029***
Housing info						
LN_House size	0.046*	0.134***	0.040	0.113***	0.073**	0.102***
Multi-housing	0.152*	-0.055	0.238***	0.050	0.007	0.084**
Housing source(base: others)						
Commodity housing	-0.076	0.075*	-0.126	-0.021	0.062	-0.003
Work unit	0.209	0.015	-0.395	-0.016	-0.167	-0.005
Self-built housing	-0.108**	-0.205***	-0.110**	-0.173**	-0.064	-0.188***
Relocation housing	0.015	0.069	0.120	-0.140	-0.220*	-0.013
Social demography						
Age	-0.012***	-0.009***	-0.011**	0.001	-0.008*	-0.005**
Male	0.003	0.133**	0.092	-0.098	0.133**	-0.020
Married	0.105*	0.144	0.123*	0.144***	0.095	0.186***
Education (base: none)						
High school or below	0.054	0.024	0.012	0.193***	-0.065	0.071
Bachelor's degree or above	-0.147	0.209	0.143	0.350***	-0.405	0.180***
Aging plan (base: others)						
Using savings	0.023	0.075*	0.049	0.027	0.047	0.041
Children's support	0.023	-0.049	0.011	-0.065	-0.027	0.002
Using pension	0.041	-0.038	0.020	0.013	0.001	0.015
Control for random effects of city and province	Y	Y	Y	Y	Y	Y

Note: "*" denotes $p < 0.05$; "**" denotes $p < 0.01$; "***" denotes $p < 0.001$

iii. Results of quantile regression

The outcomes of the quantile regression on HC are shown in Table 5. As families get richer, home wealth does not significantly affect housing consumption, with the exception of the richest group. As families get richer, the impacts of financial wealth and pensions on home consumption decrease, in contrast, the

effects of yearly family income increase. Increasing financial wealth and pension helps impoverished families more than expanding yearly family income. Wealth and pensions may counterbalance some of the yearly family income-driven consumption disparity. The quantile regression on health care and medical usage reveals that, as households get richer, housing wealth has a more detrimental impact on medical and health care consumption. This may be because wealthy households consume a lesser share of medical and health care services. As housing wealth grows, wealthy households may spend more on other things, like home assets. Except for the group at the 75% quantile, financial wealth does not appear to have a substantial influence. While the impacts of yearly household income change as families get richer, the effects of pensions on health care and medical consumption decrease as households become wealthier. This suggests that a rising pension increases the amount of medical and health care spending by low-income families. In other words, government programmes aimed at enhancing social pensions for families may somewhat counteract the disparity in the use of health care.

Table 5: Quantile regression analysis of household consumption

Independent variable	Medical and health care consumption				
	10%	25%	50%	75%	90%
Pseudo	0.145	0.145	0.126	0.115	0.098
Control others	Y	Y	Y	Y	Y
LN_Financial wealth	0.030	0.037	0.027	0.064	0.001
LN_Annual income	0.279	0.263	0.270	0.263	0.293
LN_Housing wealth			-0.077		
LN_Pension	0.113	0.125	0.0108	0.090	0.054

Note: "*" denotes $p < 0.05$; " **" denotes $p < 0.01$; " ***" denotes $p < 0.001$

CONCLUSION

This study explored the extent to which home wealth influences the consumption patterns of individuals of varying socioeconomic position, taking into consideration regional differences. Data from the China Household Finance Survey, 2011–2019 were used for our linear mixed model estimation, analysis of variance (ANOVA), and regression analysis. According to the available information, there is a significant gap between China's urban and rural areas in the country's eastern, central, and western regions. Housing wealth has a considerable and beneficial influence on the consumption of urban families, despite the fact that it has less of an impact on the consumption of households located in rural areas. Wealth and pensions may assist to compensate for some of the spending disparities caused by annual family income. Due to larger pensions, poor households are able to utilise

more medical and health-care facilities. The paper has flaws. First, elderly parents living with their children may not own the residence. The household's housing and wealth information may not reflect the orders true wealth. In order to investigate the relationship between financial success and consumer spending, this paper used cross-sectional data collected over a short period of time. Long term panel data may be able to better illustrate the dynamic changes that occur as the social welfare system is improved in the future.

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