How Financial Factors Shape Household Happiness in China's Aging Population

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Abstract

The pursuit of happiness becomes increasingly complex within China's rapidly aging population, as economic transitions and evolving social structures reshape the foundations of well-being. This study investigates the impact of aging on household happiness, with a specific focus on risk aversion, financial literacy, and household debt. Utilizing data from the China Household Finance Survey (CHFS) for 2015, 2017, and 2019, and applying ordered logistic regression models, the analysis reveals that a higher proportion of older household members is generally associated with reduced happiness, primarily due to increased risk aversion and financial conservatism. However, financial literacy significantly moderates this effect, enabling older households to make more informed decisions and maintain greater emotional and financial stability. Notably, the study reveals a modest yet surprising positive relationship between household debt and happiness, suggesting that, when managed effectively, debt can provide liquidity and support financial flexibility in aging households. These findings underscore the importance of promoting targeted financial literacy programs, particularly for older and multigenerational families, as well as developing debt management tools tailored to the needs of aging populations. Policymakers are encouraged to support intergenerational cohabitation through tax incentives, flexible housing schemes, and financial planning services, thereby strengthening household resilience and enhancing overall well-being in the face of demographic aging.

Keywords

Debt; financial literacy; happiness; household; older persons; risk aversion

Introduction

Population aging refers to the increasing proportion and number of older individuals within a population, influenced by factors such as birth rates, death rates, and migration patterns (Ismail et al., 2021; Zhou et al., 2023). This global trend reflects the natural aging of populations, with the intensity of these demographic conditions shaping its progression (Fernandes et al., 2023; Kong, 2018). Worldwide, approximately 21% of the population, comprising 2 billion people aged 60 or older, and another 21% under the age of 15 (Harper, 2014; Kanasi et al., 2016).

The aging population presents several challenges, including inhibited economic growth due to a shrinking labor force (Lee & Shin, 2019; Liu et al., 2023) and increased healthcare burdens (Jaul & Barron, 2017; Khan et al, 2024). Socially, population aging influences family care dynamics and intergenerational relationships, while also intensifying labor market challenges. As family structures change, with fewer children and more older members, traditional family support systems may weaken, creating a need for stronger community and governmental support networks (Fang et al., 2023; Yenilmez, 2015).

China currently faces a significant challenge with its rapidly aging population, which is reshaping the nation's economic landscape, particularly in terms of household savings and investment behaviors (Han & Ren, 2024; Qiu, 2023). Since 1999, the proportion of older persons in China has risen sharply from 7% to 17.8%, and this figure is projected to reach 38.8% by 2050 (Ni, 2024). This rapid demographic transition has profound implications not only at the household level but also across the national macroeconomic landscape, including impacts on consumption, labor supply, and fiscal sustainability (Lang, 2023). A combination of declining fertility rates, advancements in medical technology, improvements in social welfare, and shifts in population structure drives this demographic shift. Additionally, the aging population is marked by increased life expectancy and a larger proportion of older citizens (Gajewski, 2023). This demographic transformation has wide-ranging implications for social, economic, and political sectors, placing pressure on pension systems, healthcare services, social security, the labor market, and family structures (Liu et al., 2023). As the trend intensifies, forecasts based on current fertility rates and population dynamics suggest a continued deepening of population aging in China (Chen, 2018).

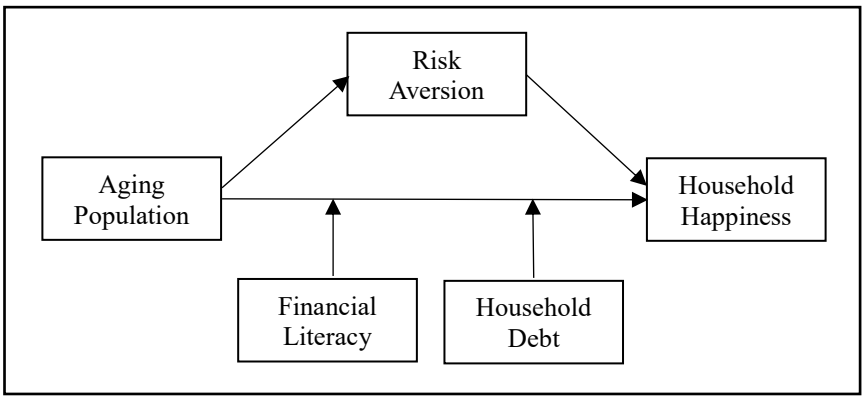
Happiness, a timeless pursuit of humanity, is both an ancient concept and a cornerstone of well-being, encompassing life satisfaction and the experience of positive emotions (Zhou et al., 2023). Although income and material security are commonly assumed to enhance happiness, recent research suggests that the relationship between wealth and daily well-being is more nuanced and may depend on methodological and contextual factors (Kudrna, 2022). Defined as the degree to which individuals find enjoyment and satisfaction in life, happiness transcends material pursuits, like wealth accumulation and luxury (Dash, 2024; Grigoryeva, 2022). This complex psychological state encompasses both objective factors, such as health, income, and social standing, and subjective aspects, including personality traits like neuroticism and extraversion, as well as values like optimism, love, and creativity (Bila & Hoian, 2022). Additionally, happiness is deeply influenced by altruistic behaviors, empathy, social responsibility, and interpersonal connections, all of which significantly enhance life satisfaction and improve quality of life (Wea & Hamu, 2023).

Building on this, the impact of the aging population on household happiness is multifaceted, with the well-being of older persons emerging as a critical factor in overall family satisfaction. As societies age, the happiness of older individuals significantly contributes to household dynamics, influenced by factors such as health, social support, and socioeconomic status (Sun, 2023; Zhang & Dong, 2023). Furthermore, cultural context and regional variations further shape the happiness of older persons, impacting both individual and household well-being (Cui, 2023; Marina et al., 2014). Understanding these determinants within the context of aging populations is essential, as it can inform policies and strategies aimed at enhancing life satisfaction, supporting resilience, and promoting meaningful engagement among older persons, ultimately fostering harmonious and resilient households (Blanchflower & Graham, 2020).

As China faces the growing realities of an aging society, understanding the drivers of happiness among older persons has taken on urgent practical significance. Previous studies have shown that migration, socioeconomic shifts, and household composition have a substantial influence on life satisfaction in the Chinese context (Knight & Gunatilaka, 2018). Insights into how aging affects household well-being are essential not only for guiding individual decision-making but also for shaping social policies that foster healthy, fulfilling lives for older persons. While the topic of aging and happiness has received scholarly attention, significant gaps remain, particularly in unpacking the complex interplay between psychological and financial factors that influence life satisfaction among aging populations.

This study focuses on three key determinants—risk aversion, financial literacy, and household debt—to better understand how these psychosocial variables shape household happiness in the context of population aging. The conceptual framework guiding this study is illustrated in Figure 1.

Figure 1: Conceptual Model Depicting the Financial Factors Shaping the Impact of Aging Population



By adopting a household-level perspective and drawing on the lived realities of China's older population, the research aims to contribute empirically to a more nuanced understanding of what drives well-being in later life. In doing so, the study not only enriches the theoretical discourse on aging and happiness but also offers actionable insights for policymakers. Findings can inform the development of targeted strategies that enhance quality of life, promote resilience, and support informed financial decision-making among older persons. Ultimately, by clarifying the mechanisms through which financial attitudes and behaviors affect household happiness, the study helps lay the groundwork for policies that encourage active, secure, and meaningful aging in contemporary China.

Literature review

Aging population and household happiness

The pursuit of household happiness in later life is profoundly shaped by demographic, cultural, and financial shifts associated with aging. The Life-Cycle Theory offers a foundational perspective for understanding these shifts, positing that individuals make economic decisions—including saving, spending, and consumption—based on their life stage. As people move into old age, they tend to reduce labor participation, depend more on savings, and increasingly prioritize stability over growth. These life-stage changes inevitably influence household dynamics and well-being (Kristoffersen, 2015; Kwon, 2024).

In multigenerational households, common in many parts of China, cohabitation enhances well-being through mutual care, resource sharing, and emotional support (Napa et al., 2020). These living arrangements strengthen family traditions, encourage interdependence, and reinforce roles that sustain household harmony (Andayani et al, 2018; Kramanon & Gray, 2015; Sesanu & Singhapakdi, 2014). In a society shaped by Confucian values and high respect for elders, caring for older parents is not only a moral responsibility but also a source of emotional reciprocity and social cohesion, which directly contributes to household happiness (Amalia, 2019; Mai & Le, 2023).

Complementing this view, Socioemotional Selectivity Theory helps explain why older people increasingly prioritize emotionally meaningful relationships over broader social interactions. This motivational shift fosters deeper bonds with immediate family members and heightens the value placed on harmonious household environments (Carstensen & Hershfield, 2021; Simons et al., 2022). Supporting this, Bruine de Bruin et al. (2020) found that while older people tend to have smaller social networks—primarily due to fewer peripheral relationships—they nonetheless report higher levels of well-being. Importantly, their study revealed that well-being is more strongly associated with satisfaction in close relationships than with the overall number of social ties, underscoring that the quality of emotional connections matters more than quantity in later life. This further validates the emotional benefits of close-knit, multigenerational living arrangements that provide meaningful and supportive interactions.

This may explain why cohabitation often leads to enhanced well-being among older individuals, as it satisfies both emotional intimacy and practical care needs (Xiang et al., 2024; Yu & Fang, 2022). However, the benefits of multigenerational living depend on maintaining quality relationships and supportive physical environments (Mohd Arshard, 2024).

These findings highlight the critical role that household structures, especially those involving older family members, play in shaping well-being in terms of economic rationality (as per Life-Cycle Theory) and emotional priorities (as per Socioemotional Selectivity Theory). This study builds on these insights by empirically examining how the aging population influences household happiness, particularly within the cultural and economic realities of China.

H1: *The aging population affects household happiness*

Financial factors affect household happiness among older persons

Research consistently shows that the subjective well-being of older people is influenced by multiple factors, with financial conditions playing a central role. Studies by Cui (2023), Phulkerd et al. (2023), and Kiaei et al. (2022) emphasized that financial stability not only enables older individuals to meet their basic needs but also enhances their overall life satisfaction. This study examines three financial dimensions—risk aversion, financial literacy, and debt—to gain a deeper understanding of how they influence happiness in aging households.

Risk aversion. Previous studies indicate that households with a higher proportion of older members are more likely to be risk-averse, preferring risk-free assets over risky investments. With age, individuals become more cautious, preferring financial safety over risky investments—a behavior aligned with both Life-Cycle Theory and broader psychological responses to uncertainty (Wahab et al., 2024; Yang et al., 2024). Both Poonpolkul (2019) and Banks et al. (2019) emphasized how the increasing sensitivity to risk among an aging population impacts household happiness.

Poonpolkul (2019) demonstrated that as people age and become more concerned about future uncertainties, they tend to save more as a precaution, which can, in turn, reduce overall welfare and negatively affect macroeconomic stability, especially in high-risk environments. Supporting this, Banks et al. (2019) found that risk aversion tends to intensify with age, driven by life events such as retirement, health shocks, and marital changes across a study of 14 European countries. This heightened risk aversion in older individuals leads to more conservative financial decisions, which can potentially limit opportunities for economic growth and impact household happiness. Together, these studies suggest that as aging populations become increasingly risk-averse, the tendency toward financial conservatism may shape both individual and household happiness by limiting engagement in potentially rewarding investments and reducing financial flexibility in later life.

Wang et al. (2024) confirmed that households with a higher share of older members show stronger tendencies toward risk-averse behavior, often prioritizing asset safety over financial growth. Similarly, Poonpolkul (2023) observed that older individuals typically reduce their work hours and increase precautionary savings—choices that, while protective, may diminish leisure and consumption in the present. In this context, risk aversion serves as a mediator—a factor that helps explain how or why aging leads to lower happiness. Essentially, as people age, they become more cautious, and this caution, while rational, can sometimes lead to fewer opportunities for enjoyment and satisfaction. With this, this research hypothesizes that:

H2: Risk aversion mediates the effect of the aging population on household happiness

Financial literacy. As people grow older, they face distinct challenges in managing their finances, including diminished financial capability and cognitive decline. These factors can significantly impact financial security and overall life satisfaction. Life-Cycle Theory posits that successful retirement outcomes depend heavily on financial planning throughout earlier life stages. However, many older people must rely on current financial knowledge to make critical decisions, often without sufficient preparation (Wahab et al., 2024; Yang et al., 2024). Financial literacy emerges as a vital tool, enabling older persons to make informed financial decisions, manage their assets effectively, and maintain a sense of financial well-being (Kiaei et al., 2022; Price, 2024; Xiao & Porto, 2017). By enhancing their financial literacy, older

individuals can better navigate complex financial situations, resulting in greater stability and satisfaction in later life.

Xiao and Porto (2017) utilized data from the 2012 U.S. National Financial Capability Study to investigate how financial literacy, behavior, and capability mediate the relationship between financial education and financial satisfaction. Their findings highlighted that financial education has a positive influence on satisfaction, with subjective financial literacy serving as a significant mediator of this effect. Similarly, Xue et al. (2020) found that older Australians with higher financial literacy report greater financial well-being, influenced by factors such as age, education, health, and homeownership. Harahap et al. (2023) examined the role of financial literacy in retirement planning among 388 medium-scale entrepreneurs in Bekasi Regency, Indonesia. Their analysis revealed that individuals with higher financial literacy are better equipped to make informed retirement savings decisions, showing that it helps individuals prepare more effectively for the future.

In China, Xu et al. (2022) demonstrated that while financial literacy increases participation in pension programs, it does not always lead to adjustments in contribution amounts, highlighting a gap between knowledge and behavior. This inconsistency can create insecurity later in life, particularly if contributions remain inadequate. A recent study by Manansala et al. (2023) further suggested that better financial literacy can enhance personal well-being by improving individuals' sense of control over their finances.

In this study, financial literacy is viewed as a moderator—a factor that influences the strength or direction of the relationship between aging and happiness. Simply put, the effect of aging on happiness may be less severe when older individuals or their families are financially literate and capable of making sound decisions. Hence, this study formulated H3:

H3: Financial literacy moderates the effect of the aging population on household happiness

Debt. Debt is a double-edged sword. While it can offer short-term financial relief or enable investments in education or property, excessive or poorly managed debt is a significant stressor, particularly for older people on fixed incomes. According to Life-Cycle Theory, individuals are expected to pay down debts before retirement. However, in practice, many older households in both developing and developed countries carry debt into later life, often exacerbated by insufficient savings or rising costs of health and housing (Yang et al., 2024).

A systematic review by Tay et al. (2016) examined various conceptualizations of debt and proposed a conceptual model illustrating how debt affects subjective well-being (SWB). The review revealed that a significant majority of the associations identified demonstrated at least one negative impact of debt on SWB. In alignment with these findings, Jantsch and Veenhoven (2022) reviewed the existing research on this topic, analyzing 198 findings from 123 studies. Their analysis confirmed that there are predominantly positive relationships between assets and happiness, while also highlighting the negative relationships between debt and happiness.

In England, Hiilamo (2020) investigated how various dimensions of household indebtedness affect mental well-being among 17,091 individuals aged 50 and over, utilizing data from Waves 1 to 8 of the English Longitudinal Study of Ageing, which encompasses 72,700 observations. The findings revealed that high levels of non-mortgage debt are associated with diminished mental well-being, evidenced by increased depressive symptoms and a lower quality of life. As the aging population confronts growing household debt, particularly in the form of non-mortgage debt, it has an adverse impact on their overall happiness and mental

health. Liu et al. (2020) and Cui (2023) investigated the relationship between household debt and happiness.

Liu et al. (2020) analyzed data from the China Household Finance Survey, which included over 8,000 households. Their findings revealed a significant adverse effect of household debt on happiness, particularly concerning housing and education debt. They also noted that risk attitudes influence this relationship; only risk-averse individuals experience a marked decrease in happiness when facing family debt. Similarly, Cui (2023) investigated the effects of insufficient or unstable income on financial stress among the aging population in China. Using data from the 2017 Chinese General Social Survey, which included 1,520 participants, the study found that economic instability, often exacerbated by debt, hinders older people's ability to meet their basic living needs, ultimately affecting their overall happiness and quality of life.

Together, these findings underscore the importance of financial stability in old age. In this study, debt functions as a moderator—it may either amplify or buffer the effect of aging on happiness, depending on the level and type of debt. For instance, manageable debt used for productive purposes might not harm happiness, but high-interest or burdensome debt could significantly worsen the well-being of older person and their families. With this, the research hypothesized:

H4: Debt moderates the effect of the aging population on household happiness

Methods

Data sources

The study used the China Household Finance Survey (CHFS) in 2015, 2017, and 2019, which interviewed approximately 40,000 households per wave. The CHFS is published by the Research Center of China Household Finance at the Southwestern University of Finance and Economics. The CHFS dataset covers a sample that spans 29 provinces across the country, including autonomous regions and municipalities, as well as numerous districts, counties, and community committees, providing both national and provincial representation. This database comprehensively reflects the real conditions of respondents' households, making it highly suitable to analyze the effect of the aging population on household happiness and the influencing roles of risk aversion, financial literacy, and debt. The study yielded a total of 82,321 observations for a three-year follow-up period after data processing.

Variable measurements

This study builds on established research, particularly the works of Liu et al. (2020), Cui (2023), Yang et al. (2023), and Yuan et al. (2022), to define and operationalize the core variables examined. Happiness, the dependent variable, is measured using item H3514 from the China Household Finance Survey (CHFS), which asks: "Overall, do you feel happy right now?" Respondents select from five choices: "very happy," "happy," "fair," "unhappy," and "very unhappy." Each response is assigned a score from 5 (very happy) to 1 (very unhappy), with higher scores indicating greater subjective well-being. This question captures an individual's

perceived happiness at the time of the survey and serves as a reliable indicator of the overall emotional climate of the household.

The extent of population aging, a key independent variable, is assessed using household-level demographic data from the CHFS. Specifically, the study calculates the proportion of household members aged 65 or older relative to the total number of household members. In the Chinese cultural context, where intergenerational living is common and intergenerational responsibility remains a deeply held value, the presence of older family members can have a meaningful influence on household happiness. By capturing aging in this proportionate way, the study aims to reflect the broader demographic shifts occurring in family structures and their implications for household well-being.

Risk aversion, treated as a potential mediating variable, is measured using a CHFS question that asks respondents to choose their preferred investment option if they had available funds. The six choices range from "high-risk, high-reward projects" to "unwilling to take any risks," including a "don't know" option. These responses are recoded to reflect general attitudes toward risk. Respondents who selected either high-risk or slightly higher-risk options are categorized as less risk-averse (assigned a value of 3). Those who chose average-risk options are treated as risk-neutral (value of 2), while those who preferred lower-risk or no-risk investments—including those who were unsure—are coded as risk-averse (value of 1). This variable helps capture household financial behavior, especially under conditions of uncertainty, which may become more pronounced with age.

Two moderating variables are also included in the study: financial literacy and household debt. Financial literacy is measured using three standard questions from the CHFS that assess basic knowledge of calculating interest rates, understanding inflation, and evaluating financial risk. For each item, respondents indicate whether they understood and answered correctly, understood but answered incorrectly, or did not understand and could not answer. A composite financial literacy index was developed using factor analysis, specifically through the iterative principal factor method. Responses that indicated refusal to answer or uncertainty were retained and treated as indirect expressions of limited financial knowledge. This index captures respondents' overall financial comprehension, which is increasingly vital in old age when individuals must make complex financial decisions with limited cognitive or informational resources.

Debt, the second moderator, is measured as a binary variable to reflect the presence or absence of any outstanding household liabilities. Rather than analyzing specific types or amounts of debt, the study uses a straightforward approach: households with any form of debt are coded as 1, and those without debt are coded as 0. This simplification helps focus on the general effect of debt on well-being without introducing variability based on debt structure, which may differ widely among households.

Finally, several control variables are included to account for household-level differences that might otherwise confound the results. These include the respondent's gender, health status, marital status, household net assets, and the child-rearing ratio. Net assets are computed by subtracting total liabilities from total assets and then taking the natural logarithm of the resulting figure (Netlog), providing a more normalized measure of household wealth. The child-rearing ratio is calculated by dividing the number of household members under the age of 18 by the total number of household members. These control variables enable the model to account for socioeconomic and demographic factors that may independently impact

household happiness, thereby facilitating a more straightforward interpretation of the effects of aging, financial literacy, risk aversion, and debt.

Model estimation

Given that household happiness is an ordinal dependent variable, this study employs an ordered logit model to investigate the relationship between the aging population and happiness, as well as the influence of selected financial factors. To test the direct effect of the aging population on happiness (H1) over a three-year follow-up period, the model below is used:

$$logit(\Pr(Happiness_{it} \leq k)) = \alpha_k + \beta_1 Aging_{it} + \beta_2 Control_{it} + \varepsilon_{it}$$

Where $Happiness_{it}$ is the dependent variable for household happiness at time *t* for individual *i*, *k* represents the cutoff points for the ordered logit, $Aging_{it}$ is the independent variable measured at time, $Control_{it}$, are the control variables measured for individual *i* at time *t*, α_k are the thresholds associated with each category of happiness, β represents the coefficient, and ε_{it} is the error term for individual *i* at time *t*.

To assess risk aversion as a mediator (H2) while controlling for other variables, the following models were used:

$$logit(\Pr(RiskAversion_{it} \leq j)) = \alpha_j + \lambda_1 Aging_{it} + \beta_2 Control_{it} + \varepsilon_{it}$$
$$logit(\Pr(Happiness_{it} \leq k)) = \alpha_k + \beta_1 Aging_{it} + \beta_2 Control_{it} + \beta_3 RiskAversion_{it} + \varepsilon_{it}$$

Where $RiskAversion_{it}$ is the mediator measured at time *t*, λ_1 indicates the effect of the aging population on risk aversion, and β_3 represents the effect of risk aversion on household happiness. Mediation is indicated if both λ_1 and β_3 are significant, suggesting that risk aversion mediates the relationship between the aging population and household happiness.

Models below were used to test the moderating effects of financial literacy (H3) and debt (H4), which include interaction terms with the aging population and control variables, respectively.

$$logit(\Pr(Happiness_{it} \leq k)) = \alpha_k + \beta_1 Aging_{it} + \beta_2 Control_{it} + \beta_4 Literacy_{it} + \gamma_1 (Aging_{it}\ x\ Literacy_{it}) + \varepsilon_{it}$$

$$logit(\Pr(Happiness_{it} \leq k)) = \alpha_k + \beta_1 Aging_{it} + \beta_2 Control_{it} + \beta_5 Debt_{it} + \gamma_2 (Aging_{it}\ x\ Debt_{it}) + \varepsilon_{it}$$

Where $Literacy_{it}$ and $Debt_{it}$ represent financial literacy and household debt, respectively, measured at time *t*, and γ denotes interaction terms for the moderation effects. A significant interaction term indicates a moderating effect.

A robustness test was performed using an alternative independent variable, the ratio of the older population (aged 65 and above) to the total household population, denoted as *AltAging*, to investigate the impact of the aging population on household happiness. This approach aims to enhance the validity of the findings and reinforce the reliability of the study's conclusions. Data analysis was conducted using STATA version 15.

Results and discussions

To ensure the timeliness of the variables, this paper utilized cross-sectional data from 2015, 2017, and 2019 to report descriptive statistics for the study variables. Table 1 presents a statistical overview of these variables, providing a foundational understanding of the sample characteristics and revealing significant variability across several dimensions.

Table 1: Summary Statistics of the Key Variables

Variable	Variable Definition	Mean	SD	Min	Max
Happiness	5 = very happy; 4 = happy; 3 = fair; 2 = unhappy; and 1 = very unhappy	2.237	.84	1.00	5.00
Aging	Proportion of household members over the age of 60	.156	.27	0.00	1.00
Risk Aversion	3 = less risk-averse; 2 = risk-neutral; and 1 = risk-averse	4.261	1.311	1.00	6.00
Literacy	Financial Literacy Index	.245	.387	0.00	6.87
Debt	1 = with debt, 0 = otherwise	.407	.491	0.00	1.00
Gender	1 = male, 2 = female	1.49	.5	1.00	2.00
Health Status	5 = very good; 4 = good; 3 = average; 2 = poor; 1 = very poor	2.356	.963	1.00	5.00
Marital Status	1 = single; 2 = married; 3 = cohabiting; 4 = separated; 5 = divorced; 6 = widowed	2.04	.962	1.00	6.00
Netlog	ln total assets - total liabilities	12.974	1.55	0.00	21.465
Child Rearing	The proportion of household members below the age of 18	.204	.283	0.00	1.00

Table 1 reveals that the average happiness score is 2.237 (SD = 0.840), indicating a moderate level of happiness with variability among respondents. The aging variables show low mean values, suggesting that older person constitute a small proportion of the population, which is significant for assessing their impact on household happiness. Risk aversion scores average 4.261 (SD = 1.311), indicating a tendency toward caution in financial decisions. Literacy levels exhibit a considerable disparity, which may impact access to opportunities. Approximately 40.7% of respondents carry some form of debt, highlighting financial challenges that may affect their well-being. The gender variable indicates a slightly skewed sample towards one gender, while health status scores average, reflecting moderate health perceptions among participants. The marital status average is 2.040, indicating a predominance of single or unmarried individuals. Financial health (as indicated by netlog) suggests overall stability, but with notable individual variability. Lastly, the child-rearing points to a lower involvement in child-rearing among respondents. Collectively, these results are crucial for informing subsequent analyses and understanding the multifaceted nature of household happiness in relation to aging and other socioeconomic factors.

Effect of aging population on household happiness

The study's primary objective is to investigate the impact of an aging population on household well-being and happiness. Table 2 presents an overview of the outcomes obtained using the ordered logit model.

Table 2: Effect of Aging Population on Happiness

Variables	Odds ratio	SE	Z Statistics
Aging	.85***	.02	-6.79
Gender	.966**	.013	-2.62
Health status	1.567***	.015	45.52
Marital status	.973***	.007	-3.72
Netlog	.925***	.004	-18.05
Child-rearing	.905**	.04	-2.27
Pseudo R^2 = 0.015			
Chi-square = 2538.573			
Prob > chi^2 = .000			

*Note: No. of observations = 82,467; *** p < .01, ** p < .05, * p < .10*

The results presented in Table 2 underscore the significant effect of the aging population on household happiness, aligning closely with existing literature that emphasizes the benefits of multigenerational living arrangements. The odds ratio for aging is 0.85, indicating that for each unit increase in the proportion of older individuals within a household, the odds of reporting higher happiness levels decrease by 15%. This supports the hypothesis that the presence of older family members affects household happiness (H1) ($p < .001$).

These findings may appear counterintuitive when viewed through the lens of conventional beliefs about multigenerational households. Prior literature suggests that such living arrangements foster emotional support, reinforce family traditions, and strengthen reciprocal care—factors that contribute to household cohesion and happiness (Kramanon & Gray, 2015; Napa et al., 2020; Sesanu & Singhapakdi, 2014). In societies like China, where Confucian traditions and familial duty shape intergenerational dynamics, caring for older parents is often perceived as both a moral obligation and a source of emotional fulfillment (Mai & Le, 2023). Cohabiting with older family members is commonly associated with strong interpersonal bonds and shared responsibility, which, in theory, should elevate household well-being.

However, the data suggest a more complex reality. While multigenerational cohabitation may offer emotional and practical benefits, it can also introduce challenges such as caregiving burdens, generational conflicts, and role strain, especially in households lacking adequate resources or emotional preparedness. This tension is well explained by Life-Cycle Theory, which emphasizes that as individuals age, their economic behavior shifts toward increased dependence on savings and reduced labor income. These shifts can create financial strain and alter the intra-household balance of contribution and care, subtly reshaping how happiness is experienced by different members (Kristoffersen, 2015; Kwon, 2024).

At the same time, Socioemotional Selectivity Theory provides an important psychological dimension to this dynamic. As people age, they prioritize emotionally significant relationships and are more motivated by the quality of social interactions, rather than their quantity. In this light, the mere presence of older household members does not automatically

enhance happiness unless those relationships are meaningful and emotionally fulfilling (Carstensen & Hershfield, 2021; Simons et al., 2022). Supporting this, Bruine de Bruin et al. (2020) found that although older people tend to have smaller social networks, their well-being is more strongly tied to the satisfaction they derive from close relationships. This suggests that emotional quality within family structures—rather than physical proximity or household configuration alone—is what ultimately contributes to happiness in aging families.

The findings from the ordered logit model also underscore the significance of several control variables in influencing household happiness. Health status shows the most robust positive effect ($p < .001$), reinforcing that physical and mental well-being are foundational to life satisfaction. Gender also plays a role ($p < .05$), with females generally reporting higher happiness levels, possibly due to stronger social and emotional networks. Marital status, often assumed to be a protective factor, exhibits a slight negative association with happiness ($p < .001$), indicating that not all partnerships contribute equally to well-being, particularly in later life when caregiving dynamics may shift. Financial stress, as reflected in the negative association with household net assets (Netlog) ($p < .001$), also appears to detract from happiness, underscoring the enduring importance of economic stability. Similarly, the child-rearing ratio shows an adverse effect ($p < .05$), likely due to the added emotional and financial responsibilities associated with raising children.

In summary, while population aging is often viewed as a cultural and familial asset, this study finds that the presence of older household members—without a supportive, resource-rich, and emotionally nurturing environment—may reduce overall household happiness. This finding does not negate the potential benefits of multigenerational living; instead, it underscores the importance of conditions that support successful intergenerational relationships. Prior research suggests that such households can offer crucial emotional and practical support to aging individuals, particularly those facing mental health challenges (Xiang et al., 2024). However, as Mohd Arshard (2024) emphasized, the quality of these arrangements—defined by the emotional atmosphere, communication, and physical environment—is crucial to ensuring they enhance rather than diminish well-being.

The results highlight a key tension in the experience of aging within households: while demographic shifts toward older populations can strain household happiness, culturally attuned and emotionally supportive environments can offset these effects. Interventions that strengthen intergenerational communication, reduce caregiving burdens, and improve the quality of social connections may be crucial in helping households adapt to demographic change. As this study demonstrates, understanding happiness in the context of aging necessitates attention not only to who resides in a household but also to how they coexist with one another.

Mediating effect of risk aversion on the effect of an aging population on household happiness

Building on the foundation set by earlier findings, Table 3 examines the mediating effect of risk aversion on the relationship between the aging population and household happiness (H2), providing deeper insights into how financial behaviors influenced by aging affect the overall well-being of a household.

Table 3: Mediating Effect of Risk Aversion on the Relationship Between Aging Population and Household Happiness

Variable	Odds ratio	SE	Z Statistics
Aging	.487***	.015	-22.91
Gender	1.013	.016	0.81
Health status	.981*	.011	-1.73
Marital status	.966***	.009	-3.79
Netlog	1.366***	.008	55.98
Childrearing	3.425***	.17	24.77
Pseudo R^2 = 0.037			
Chi-square = 4806.172			
Prob > chi2 = .000			

*Note: No. of observations = 82,568; *** p < .01, ** p < .05, * p < .10*

The findings presented in Table 3 highlight the significant mediating effect of risk aversion on the relationship between the aging population and household happiness, confirming the hypothesis that risk aversion mediates this effect (H2). The odds ratio for aging is 0.487 ($p < .001$), indicating that an increase in the proportion of older individuals within a household is associated with a 51.3% decrease in the odds of reporting higher happiness levels. This result expands upon existing literature, which emphasizes how heightened risk aversion among aging populations affects household dynamics and overall well-being.

This mediating effect is consistent with findings from previous studies, which have long observed that older individuals tend to become more financially conservative. As people age, their tolerance for financial risk diminishes, leading them to favor safe, low-return assets over potentially profitable but uncertain investments. This behavioral shift is grounded in Life-Cycle Theory, which explains that individuals naturally prioritize stability over growth as they transition into later life stages. With fewer working years ahead and a greater reliance on savings, older individuals tend to adopt more precautionary financial strategies (Wahab et al., 2024; Yang et al., 2024).

Previous studies, including those by Poonpolkul (2019) and Banks et al. (2019), documented that households with a larger proportion of older members tend to exhibit increased risk aversion, often opting for safer, risk-free assets rather than engaging in potentially profitable investments. Poonpolkul (2019) demonstrated that as individuals age and their concerns about future uncertainties grow, they tend to adopt a more conservative financial strategy, which can inadvertently lower their overall welfare. This aligns with Banks et al. (2019), who noted that aging individuals are often more sensitive to risk due to life events like retirement and health shocks, leading to financial decisions that favor stability over growth.

Furthermore, the study corroborates Wang et al. (2024) and Poonpolkul (2023) in emphasizing the economic and psychological effects of heightened risk aversion associated with an aging population. It illustrates that a higher proportion of older individuals in households increases the likelihood of risk-averse behavior, adjusts their work hours, and increases precautionary savings, which tends to favor safer assets and reduce both consumption and leisure time. While these adjustments aim to secure future well-being, they may detract from current happiness, thereby affecting household satisfaction in the present.

From a psychological perspective, risk aversion can be viewed as a coping mechanism—a means for older individuals to manage perceived vulnerabilities. However, this increased

caution can also restrict engagement with new or potentially rewarding experiences. In this way, risk aversion acts as a mediator, explaining how aging affects happiness not simply over time, but through the behavioral changes it triggers. To put it simply, as people age, they naturally become more cautious. That caution often translates into safer—but sometimes more limited—financial decisions. While these choices may offer protection, they can also reduce present enjoyment and economic opportunities, thereby decreasing household happiness.

Taken together, these findings build upon and deepen prior research by illustrating the psychosocial and financial pathways through which aging affects happiness. By identifying risk aversion as a key behavioral mediator, this study helps clarify why happiness may decline as household members grow older, not necessarily because of age itself, but because of how financial strategies and emotional security are recalibrated in response to aging. Recognizing this relationship opens the door for more targeted financial planning and well-being interventions tailored to aging households.

Moderating effects of financial literacy and debt on the effect of aging population on household happiness

The study aimed to examine the determinants of household happiness in the context of an aging population, with a particular focus on various financial factors. Table 4 examines the moderating effects of financial literacy and debt, providing further insight into how these financial factors interact with aging to influence household happiness.

The results in Table 4 show that financial literacy significantly moderates the relationship between aging and household happiness ($p < .05$). Specifically, the interaction term (Aging × Literacy) has a positive and significant coefficient, suggesting that as older person or their families become more financially literate, the adverse effects of aging on happiness are reduced. Simply put, financial literacy empowers older individuals to make informed financial decisions with greater confidence, potentially reducing stress and improving overall satisfaction.

This finding aligns with the Life-Cycle Theory, which posits that financial planning across various life stages is crucial for achieving well-being in retirement. Unfortunately, many older people enter this phase with limited preparation, making financial literacy in later life even more essential. Prior studies confirm this: Xiao and Porto (2017) found that financial literacy has a positive influence on satisfaction, while Xue et al. (2020) demonstrated that financially literate older individuals experience greater financial well-being. Similarly, Harahap et al. (2023) emphasized the importance of financial literacy in enhancing retirement planning, and Xu et al. (2022) found that it facilitates individuals' more active engagement in pension systems, even if behavioral change does not always follow knowledge acquisition.

In this context, financial literacy acts as a protective buffer, reducing vulnerability to cognitive decline or economic shocks. It enables older person to better manage their resources, avoid poor financial decisions, and maintain a sense of control, factors that contribute positively to their happiness. In line with H3, these results confirm that when older individuals or their household members are financially informed, they are more likely to sustain well-being despite the challenges of aging.

Table 4: Moderating Effects of Financial Literacy and Debt

Variable	Odds ratio	SE	Z statistics
Aging	.832***	.024	-6.33
Literacy	1.112***	.022	5.30
Debt	1.121***	.018	7.14
Aging*Literacy	1.208**	.07	3.28
Aging*Debt	1.090*	.053	1.76
Gender	.967**	.013	-2.51
Health status	1.562***	.015	45.15
Marital status	.972***	.007	-3.84
Netlog	.916***	.004	-19.76
Childrearing	.915**	.041	-2.00
Pseudo R^2 = 0.016			
Chi-square = 2696.069			
Prob > chi2 = .000			

*Note: No. of observations = 82,321; *** $p < .01$, ** $p < .05$, * $p < .10$*

Interestingly, debt emerged to play a statistically significant moderating role in the relationship between aging and household happiness ($p < .10$), suggesting that the presence of debt interacts with the aging variable in ways that can, under certain conditions, enhance well-being. Specifically, the interaction term (Aging × Debt) yielded a positive odds ratio, indicating that older households with debt tend to report slightly higher levels of happiness compared to those without debt. This may seem counterintuitive, given the conventional view of debt as a financial stressor, particularly for older individuals. However, this nuanced result highlights the complex and context-dependent nature of how households utilize and experience debt in later life.

From a theoretical standpoint, this finding partially aligns with the Life-Cycle Theory, which posits that individuals smooth consumption over time by borrowing when young or during income shocks and repaying debt in later years. However, in practice, especially in aging societies, many older persons continue to carry debt beyond retirement due to rising living costs, healthcare needs, or insufficient savings. In such contexts, debt may serve not as a burden but as a strategic financial tool, enabling families to maintain living standards, access healthcare, or support intergenerational needs.

Supporting this, some research suggests that manageable debt, such as low-interest loans or credit used for productive investments (e.g., education, housing, or business ventures), can ease short-term financial pressures and even foster a sense of empowerment and psychological well-being (Correia et al., 2022; Lombardi et al., 2017; Power & Mbianda Tandja, 2022). Furthermore, borrowing within familial or social networks—common in many collectivist cultures—may enhance social connectedness and trust, thereby contributing to overall happiness and well-being.

However, a significant limitation of this study lies in the measurement of the debt variable, which is treated as a simple binary indicator (1 = household has debt, 0 = household has no debt). This approach does not account for crucial distinctions in the type, amount, purpose, interest rates, or repayment status of the debt. As a result, the analysis cannot distinguish between households with manageable, productive debt and those burdened by high-interest, problematic, or overwhelming debt. This limits the interpretive power of the findings.

The observed positive moderating effect should therefore be interpreted with caution. While

some aging households may experience improved happiness due to increased financial flexibility from access to credit, others may face heightened financial and psychological stress, especially when debt is excessive or challenging to manage. Prior studies have consistently shown that unmanageable debt is negatively associated with mental health, subjective well-being, and life satisfaction, particularly among older individuals with limited income and rising expenses (Cui, 2023; Hiilamo, 2020; Liu et al., 2020; Tay et al., 2016).

Given these complexities, future research should consider incorporating a more nuanced measurement of household debt, including variables that reflect the burden, utilization, and management strategies associated with debt. For example, differentiating between mortgage debt, education loans, consumer credit, and informal borrowing, as well as assessing the debt-to-income ratio and payment delinquency, would offer a more precise and comprehensive picture of how debt influences household happiness in aging populations. Moreover, exploring how financial literacy or debt counseling mediates the impact of debt on well-being could yield valuable insights into resilience and coping strategies.

In summary, while the results tentatively suggest that debt may buffer the adverse effects of aging on household happiness—possibly by providing financial liquidity or supporting intergenerational needs—the binary nature of the variable constrains definitive conclusions. A more refined approach to measuring and interpreting debt, particularly in the context of aging, is essential to understanding its proper role in shaping household well-being.

Robustness test

To enhance the reliability of prior research findings and minimize the impact of measurement errors and additional variables, this study adjusted the dependent variable to reassess the effect of the aging population on household happiness. Table 5 displays the results of the robustness test, which uses the ratio of the older population (aged 65 and above) to the total household population (AltAging).

Table 5: Robustness Test Results (Aging population aged 65 and above on happiness)

Variable	Odds ratio	SE	Z statistics
AltAging	.823***	.023	-6.95
Gender	.966**	.013	-2.61
Health status	1.566***	.015	45.47
Marital status	.974***	.007	-3.58
Netlog	.925***	.004	-18.09
Childrearing	.905**	.04	-2.27
Pseudo R^2 = 0.015			
Chi-square = 2540.827			
Prob > chi2 = .000			

*Note: No. of observations = 82,467; *** $p < .01$, ** $p < .05$, * $p < .10$*

The robustness test results indicate a consistent adverse effect of the aging population (specifically those aged 65 and above) on household happiness ($p < .001$). This finding reinforces the results from Table 3, confirming that as the proportion of older individuals within a household increases, the likelihood of reporting higher happiness levels decreases.

Both tables also demonstrate the stability of other control variables. For instance, gender remains a significant factor in both tests, indicating that males tend to report lower happiness

levels compared to females. Health status continues to show a strong positive association with happiness, suggesting that healthier household members make a significant contribution to overall life satisfaction. Marital status, net assets (as measured by Netlog), and child-rearing dynamics exhibit similar trends across both tables, reinforcing the notion that these factors also play a crucial role in shaping household happiness.

The consistency of the results across both tables implies that the findings are robust, indicating that the effects of an aging population on happiness are not merely artifacts of the original analysis. This further highlights the importance of considering demographic shifts in policy-making and social programs designed to improve household well-being. Policies promoting multigenerational cohabitation, improved healthcare, and emotional support for families with older members are crucial to mitigating the negative impacts of aging on happiness.

Conclusion

To understand the happiness in households with older members and the psycho-economic factors influencing it, this study utilized CHFS data and analyzed it using ordered logistic regression. The study confirmed that an aging population has a significant impact on household happiness, particularly through complex multigenerational living arrangements that influence overall well-being. The finding underscores intergenerational responsibility as a cultural cornerstone in China and other Asian societies, where caring for older parents not only fulfills social expectations but also fosters reciprocal relationships that boost life satisfaction and happiness for all family members. The study further reveals the interplay of control variables, including health status, gender, marital status, and household assets, emphasizing the need for a holistic approach to understanding the determinants of happiness within households.

This study affirmed and extended existing research on the role of risk aversion in the relationship between aging populations and household happiness. The significant mediating effect of risk aversion on the link between an aging household demographic and happiness ($p < .001$). The findings underscore the importance of addressing risk aversion among aging populations, as it has a significant impact on financial behaviors and the overall happiness and well-being of households. The presence of older individuals in a household tends to heighten risk-averse behavior, leading families to adjust personal and professional activities and increase precautionary savings. This shift often results in a preference for safer assets, which can lead to reduced consumption and a decrease in leisure time. While these adjustments are intended to secure future well-being, they may come at the cost of current happiness, ultimately affecting household satisfaction in the present.

The study concluded that financial literacy significantly moderates the effect of the aging population on the happiness of Chinese households. The positive interaction between financial literacy and the aging population indicates that financially literate households with older person are better equipped to handle financial complexities, thereby enhancing their overall happiness. Financial literacy empowers aging individuals to make informed decisions that promote their well-being, even as they navigate the economic and cognitive challenges associated with aging.

Notably, the ability to spread out expenditures through debt, installment payments, or small loans enables aging households to maintain flexibility in their financial planning, which can

potentially lead to improved well-being. The additional cash flow provided by debt can alleviate short-term financial pressures, contributing positively to household well-being. However, it is essential to emphasize that the moderating effect of debt is considered "marginal." This marginal effect suggests that while households with debt may experience some benefits in terms of financial flexibility, the positive influence of debt on happiness is not consistently strong across all households. Consequently, the relatively weak association highlights the need for a nuanced understanding of debt's role in financial well-being. Future research should investigate the specific conditions under which debt may either positively or negatively impact household happiness among older individuals, enabling a more comprehensive assessment of its implications.

Implications

This study offers both theoretical and practical insights into how aging influences household happiness, framed through the lens of Life-Cycle Theory and Socioemotional Selectivity Theory. Life-Cycle Theory suggests that as individuals age, they naturally shift toward more cautious financial behavior—saving more, investing conservatively, and avoiding risk. The findings affirm this, showing that heightened risk aversion among older persons can reduce happiness by limiting financial flexibility. At the same time, Socioemotional Selectivity Theory emphasizes the emotional priorities of aging individuals, who increasingly value close, meaningful relationships over broad social ties. This was reflected in the study's results, which highlight the positive role of family cohabitation, emotional support, and subjective well-being in later life.

As populations age rapidly across the globe—from East Asia to Europe and North America—these findings are both timely and relevant. Aging is not just an economic or healthcare issue; it is a profoundly social and emotional process that affects family structures, financial behavior, and public policy. The study urges a shift in how societies design financial systems and support networks to meet the evolving needs of aging households. The study shows that financial literacy can ease the adverse effects of aging on happiness. This points to the need for financial education programs tailored specifically to older person and their families. These should include guidance on retirement planning, safe investment strategies, borrowing wisely, and using digital tools that are accessible and age-friendly. Intergenerational financial education—where younger and older family members learn together—can also build shared understanding and reduce generational financial stress.

Multigenerational households are shown to offer emotional and financial benefits, but they work best when built on a shared responsibility, rather than one-sided dependence. Policymakers can encourage this by providing tax incentives or housing benefits to families caring for older members, paired with empowerment tools such as caregiving support, financial planning assistance, or part-time employment opportunities for active older persons.

Moreover, this study found that debt can play a positive role in household happiness among aging populations, provided it is well-managed and effectively managed. One limitation, however, was that debt was measured as a simple yes/no variable, overlooking the complexity of debt types and levels. In practice, low-interest or productive debt (like home improvement or medical loans) can enhance quality of life, while uncontrolled debt can erode well-being. Financial institutions should therefore design transparent and flexible credit products for older individuals, provide debt management counseling, and utilize holistic tools

to assess their financial health, rather than focusing on debt presence. Ultimately, the study underscores the significance of open and collaborative discussions about finances within families. Financial decisions in aging households often involve multiple generations. However, communication gaps and stigma can lead to misunderstandings or silent struggles. Support for intergenerational financial workshops, co-planning tools, and family budgeting platforms can encourage transparency and shared responsibility.

In summary, the study reinforces the notion that aging well is not just about living longer—it is about living with dignity, connection, and confidence. For policymakers, financial educators, and families alike, the challenge is to build systems that honor these goals across generations.

Limitations of the study

This study provides valuable insights into the relationship between aging and household happiness; however, several limitations should be noted. The use of a cross-sectional design limits the ability to assess causality or track long-term changes in household well-being as the population ages. Although the dataset is drawn from a larger panel, the analysis is confined to specific time points, reducing its capacity to capture dynamic shifts over time.

Self-reported measures for key variables—such as happiness, financial literacy, and health—introduce the potential for response bias. Participants may overestimate or underestimate their conditions due to social desirability or recall biases, which can impact the reliability of the results.

A notable limitation involves the operationalization of debt. In this study, debt is measured as a binary variable (having debt vs. not), which overlooks critical distinctions between manageable debt—such as low-interest loans used for investment or short-term liquidity—and problematic debt, which may involve high interest rates, repayment struggles, or financial distress. This oversimplification limits the ability to fully understand the nuanced role debt plays in shaping household happiness, especially among older people.

Lastly, as the study is grounded in the Chinese cultural context, its findings may not be directly generalizable to societies with different family structures, support systems, or values around aging. Future research should address these limitations by incorporating longitudinal designs, disaggregated debt and health measures, and comparative studies across cultural settings to better capture the complex relationship between aging, financial behavior, and well-being.

AI use declaration

This article utilized AI technology to assist with language refinement, translation, content organization, and clarity improvement. All analyses, interpretations, and conclusions are the authors' own.

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