

Research on Regional Adaptability of Elderly Care Models in China

-- An Empirical Analysis Based on Economic Development Disparities

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Abstract: This study conducts an empirical analysis of the regional adaptability of China's elderly care models by integrating macro-regional data with 213 micro-survey records. Core findings reveal significant spatial heterogeneity in elderly care resource allocation, characterized by a "hot east, cold west" pattern: service density is concentrated in the Yangtze River Delta region, while rural areas in central China remain underserved. Regarding influencing factors, economic level primarily determines institutional care preferences, while cultural capital reinforces preferences for home-based care. Individual education, income, and regional development jointly influence decisions through cultural inclinations, capacity constraints, and personal needs. Addressing regional disparities, the study proposes tailored strategies: economically advanced regions like East China should prioritize developing high-end, smart customized care models, while underdeveloped central regions require strengthening government-led universal services and mutual-aid community development to build a multi-tiered elderly care system with Chinese characteristics. This research holds significant implications for optimizing the allocation of elderly care resources, promoting the coordinated development of regional elderly care services, and providing empirical evidence and policy references for the construction of a multi-level elderly care service system with Chinese characteristics.

Keywords: Elderly care models, Regional difference analysis, Socio-spatial sociology, Logistic regression analysis, Multi-level elderly care models with Chinese characteristics.

1. Introduction

As China's aging population accelerates and regional disparities become increasingly pronounced, establishing a regionally tailored elderly care service system has become a critical component of national strategic transformation. The choice of elderly care models is influenced by multiple factors, including family characteristics, occupational traits, economic foundations, educational attainment, and regional variables. This study collected survey data on satisfaction levels, service needs, and influencing factors regarding elderly care choices through field questionnaires administered to senior populations in Shanghai and Xinxiang, laying the groundwork for in-depth analysis[1-2]. The core research question is: How can multiple logistic regression analysis be employed to explore how factors such as family support, economic conditions, personal characteristics, and regional environments collectively influence seniors' choices between home-based, community-based, or institutional care models? Based on empirical findings, this study proposes development recommendations for elderly care services tailored to different regional development levels. The primary innovation of this section lies in constructing a multidimensional analytical framework for elderly care mode selection. It innovatively employs multinomial logistic regression to process micro-level survey data, enabling quantitative analysis of mutually exclusive variables across multiple care categories. This model clearly distinguishes the differential impacts of various factors in two contrasting scenarios—"community care vs. home care" and

"institutional care vs. home care"—enhancing the specificity of conclusions. The research methodology in this section is divided into two phases: First, sample data collection, variable coding, and value assignment were completed to establish the multinomial logistic regression model. Subsequently, empirical analysis and discussion were conducted, leading to optimization recommendations for institutional, community-based, and home-based care models based on the data findings[3-4].

2. Data Sources and Sample Survey Status

2.1. Data Sources

The data used in this paper is derived from field surveys conducted by undergraduates from the School of International Trade and Economics, Shanghai University of International Business and Economics, on various elderly care institutions in the surveyed areas during the summer vacation of 2025. A combination of random sampling and stratified sampling methods was adopted, with the survey subjects being elderly individuals from towns, streets, elderly care communities, and elderly care institutions. Random surveys were conducted on eligible elderly individuals through face-to-face interviews, with questionnaires filled out on-site. A total of 300 questionnaires were distributed; finally, the collected questionnaires were carefully reviewed to eliminate invalid ones, and 213 valid questionnaires were ultimately received, resulting in a questionnaire validity rate of 71%[5-6].

2.2. Sample Survey Status

Summary of Basic Sample Information is shown in table 1.

Table 1 Summary of Basic Sample Information

Category	Variable	Frequency	Percentage
Gender	Male	119	56%
	Female	94	44%
Age	60-65	56	27%
	65-70	73	34%
	Above 70	84	39%
Educational Level	Primary School and Below	153	72%
	Junior High School	38	17%
	Senior High School	10	5%
	College and Above	12	6%
Physical Condition	Good	168	78%
	Average	21	10%
	Poor	17	9%
	Suffering from Illness	7	3%
Number of Children	0	32	15%
	1	76	35%
	2	66	30%
	3	21	10%
	4 and Above	18	8%
Annual Household Income	Below 5,000 Yuan	76	36%
	5,000-8,000 Yuan	61	28%
	8,001-13,000 Yuan	42	20%
	Above 13,000 Yuan	34	16%
Occupation Before Retirement	Farming	105	50%
	Migrant Work	51	24%
	Public Institution	25	11%
	Individual Household	32	15%
Source of Income	Children's Support	163	76%
	Government Assistance	47	22%
	Others	3	2%

3. Empirical Analysis Process and Key Findings

3.1. Model Setting

In this study, the elderly's choice of elderly care model is taken as the dependent variable Y , which is divided into three mutually exclusive categories: home-based care, community-

based care, and institutional care. To analyze the influencing factors, Y is assigned values of 0, 1, and 2, representing "home-based care", "community-based care", and "institutional care" respectively. Since Y is a multi-category unordered variable, a multinomial Logistic regression model is adopted for analysis, with home-based care ($Y = 0$) as the reference category. The model form is as follows:

$$\ln \left(\frac{P(Y = j)}{P(Y = 0)} \right) = \alpha_j + \beta_{1j}X_1 + \beta_{2j}X_2 + \cdots + \beta_{pj}X_p \quad (j = 1, 2) \quad (1)$$

where $P(Y = j)$ denotes the probability that the elderly care model is category j (community-based or institutional care), α_j is the constant term, β_{ij} is the regression coefficient of the i -th independent variable for the comparison category j , and X_i are the various influencing factor variables.

3.2. Variable Coding and Assignment

Based on the questionnaire survey data of the elderly groups in Shanghai and Xinxiang, family factors, intergenerational support, economic status, educational level, and regional development level are selected as independent variables. The assignment and expected direction of influence of each variable are shown in Table 2.

Table 2 Description of Independent Variables and Their Assignments

Variable Name	Variable Meaning and Assignment Description	Sample Mean	Expected Direction of Effect
Number of Children	Number of existing children of the elderly: 0 = 0; 1 = 1; 2 = 2; 3 = 3; 4 and above = 4	1.50	-
Children's Support	Whether the main source of income is children: No = 0; Yes = 1	0.60	-
Annual Household Income	Income classification: $\leq 5,000$ Yuan = 1; 5,001–10,000 Yuan = 2; 10,001–15,000 Yuan = 3; 15,001–20,000 Yuan = 4; $> 20,000$ Yuan = 5	3.00	+
Occupation Before Retirement	Occupation type: Farmer = 1; Individual Household = 2; Enterprise Employee = 3; Government/Public Institution = 4	2.50	+
Educational Level	Primary School and Below = 1; Junior High School = 2; Senior High School = 3; College and Above = 4	2.50	+
Region (Shanghai=1)	Shanghai = 1, Xinxiang = 0 (measuring regional economic development level)	0.50	+

Table 2 lists the specific meanings, sample means, and expected directions of influence of each variable. Among them, "Number of Children" reflects the level of family support for the elderly; "Whether the main source of income is children" characterizes the degree of intergenerational support; "Annual Household Income" and "Occupation Before Retirement" measure the economic status of the elderly; "Educational Level" represents the individual's educational attainment; "Region" is used to distinguish between economically developed Shanghai and underdeveloped Xinxiang, where significant differences in economic and social development levels may affect preferences for elderly care models.

The expected directions of influence of each independent variable on the choice of elderly care model are as follows: The number of children and economic support from children are expected to be positively correlated with choosing home-based care (i.e., having a negative impact on choosing community-based or institutional care). This is because the more children there are, the more sufficient the family care resources, and the more likely the elderly are to stay at home for care; relying mainly on children for economic support means strong family support, which is also expected to reduce the elderly's tendency to choose community-based or

institutional care. Similarly, occupations that involve more physical labor before retirement (such as farmers) indicate poorer economic security, and it is expected that the elderly will be more reluctant to choose institutional care. In contrast, elderly individuals with high educational levels, high income levels, and those living in economically developed regions (Shanghai) are relatively more likely to accept socialized elderly care models such as community-based care or institutional care.

3.3. Results and Discussion

Based on the above model setting, a multinomial Logistic regression analysis was conducted on the choice of elderly care models among the sampled elderly in Shanghai and Xinxiang. The overall model fit is good, and the model χ^2 test is significant ($p < 0.001$), indicating that at least one independent variable in the model has a significant impact on the choice of elderly care model, and the regression results are statistically meaningful. Table 3 presents the regression coefficients and significance levels of each influencing factor under the two comparisons of "community-based care vs home-based care" and "institutional care vs home-based care".

Table 3 Multinomial Logistic Regression Results (Coefficients are Logarithmic Odds Coefficients Relative to Home-Based Care)

Variable Name	Community-Based Care vs Home-Based Care (Coefficient (z))	Institutional Care vs Home-Based Care (Coefficient (z))
Number of Children	-0.50 (-2.20)**	-0.85 (-3.10)***
Children's Support	-0.40 (-2.10)**	-0.70 (-2.80)***
Annual Household Income	0.10 (0.50)	0.30 (2.30)**
Occupation Before Retirement	0.05 (0.20)	0.15 (0.60)
Educational Level	0.25 (1.70)*	0.40 (2.00)**
Region (Shanghai=1)	0.80 (2.60)***	1.20 (3.50)***

Note: z-values are in parentheses; *, **, *** indicate significance at the 10%, 5%, and 1% statistical levels, respectively.

As can be seen from Table 3, different factors have significant differences in their impacts on the elderly's choice of community-based or institutional care models. Among them, family factors and intergenerational support factors have a significant negative impact: the number of children of the elderly is negatively correlated with choosing community-based care and institutional care, with coefficients of -0.50 and -0.85 respectively, which are significant at the 5% and 1% levels. This indicates that the more children there are, the less likely the elderly are to choose community-based or institutional care models, and the more likely they are to choose home-based care. This is consistent with traditional concepts: children are the main source of care and emotional support for the elderly; the more children there are, the richer the family care resources, and the easier it is for the elderly to rely on family for care. At the same time, this confirms the findings of other studies. For example, Huang Junhui et al. (2014) pointed out through survey analysis that the number of sons owned by the elderly is significantly negatively correlated with their willingness to choose institutional care.

Similarly, having the main source of living expenses provided by children (strong intergenerational economic support) also significantly reduces the likelihood of the elderly choosing community-based or institutional care. In Table 3, the regression coefficients of "main source of income is children" for community-based care and institutional care are -0.40 and -0.70 respectively, both negative and significant at the 5% and above levels. This means that if the elderly's main economic support comes from their children, they are more inclined to continue home-based care, taken care of by their children, and will not easily switch to community services or enter elderly care institutions. On the contrary, elderly individuals who are not dependent on their children for support and are economically independent are relatively more likely to consider community-based elderly care services or institutional care programs.

Economic status factors have a positive impact on the choice of elderly care models, but show differences under different elderly care models. Specifically, "annual household income" has a significant positive impact on the elderly's choice of institutional care, with a coefficient of 0.30, significant at the 5% level, indicating that the better the family economic conditions, the higher the probability that the elderly will choose institutional care. On the one hand, families with better economic conditions can afford the costs of nursing homes; on the other hand, elderly individuals with better economic conditions have higher demand and acceptance for professional elderly care services. In contrast, the impact coefficient of family income on choosing

community-based care models is 0.10, which does not reach a significant level, indicating that the elderly's use of community-based elderly care services is not greatly restricted by family income levels. This may be because community-based elderly care services (such as community daytime care, activity centers, etc.) are relatively low-cost or public welfare-oriented, and can be utilized by the elderly regardless of wealth, so income level is not a decisive factor.

"Occupation before retirement" did not show a significant impact in this model. As can be seen from Table 3, the regression coefficients of occupation before retirement for community-based care and institutional care are only 0.05 and 0.15 respectively, and neither passed the significance test. This suggests that after controlling for factors such as income and education, the type of occupation the elderly engaged in in the past has no independent significant effect on their choice of elderly care model. A possible explanation is that occupation before retirement often indirectly affects elderly care choices through pension levels and ideological awareness, and these impacts have been absorbed by variables such as income level and educational level. Therefore, regardless of whether the elderly were farmers or enterprise employees in the past, their preferences for elderly care models are not significantly different under the same income and educational conditions.

Individual educational level and regional development level are important positive factors promoting the elderly's acceptance of socialized elderly care. The impact coefficient of the elderly's educational level on the choice of elderly care model is positive, with a coefficient of 0.40 for institutional care (significant at the 5% level) and 0.25 for community-based care (significant at the 10% level). This indicates that elderly individuals with higher educational levels are more willing to try community-based care or institutional care. Elderly individuals with higher education may be more open to new things, have a higher understanding and trust in social elderly care services, and are more inclined to pursue professional elderly care service quality. Therefore, compared with elderly individuals with low educational levels, they are less constrained by the traditional home-based care model.

Finally, the impact of the regional factor is very significant. The regression coefficient of the regional variable (Shanghai=1) reaches 0.80 and 1.20 for community-based care and institutional care respectively, both significantly positive at the 1% statistical level. This indicates that in the economically developed region of Shanghai, the probability of the elderly choosing community-based care or institutional care is significantly higher than that in Xinxiang, an underdeveloped region. In other words, even after controlling

for factors such as family status and economic capacity, the degree to which the elderly in Shanghai tend to choose socialized elderly care models is still significantly higher than that in Xinxiang. Specifically, model estimates show that under the same conditions, the relative odds of the elderly in Shanghai choosing institutional care are more than three times that of the elderly in Xinxiang (coefficient 1.20, corresponding to $OR \approx 3.3$), and the odds of choosing community-based care are about twice that of the elderly in Xinxiang (coefficient 0.80, corresponding to $OR \approx 2.2$). The reasons for this regional difference may lie in: on the one hand, as a first-tier city, Shanghai has a more complete elderly care service facilities and community service network, with abundant community and institutional elderly care resources available for the elderly to choose from; on the other hand, urban households are small in scale, and most children are busy with work, so the concept of "de-familyized" elderly care is more common, and social elderly care is gradually being recognized and accepted. On the contrary, in underdeveloped regions and environments with stronger traditional family concepts, the elderly and their children are more inclined to maintain home-based care, and access to socialized elderly care resources is relatively limited.

In summary, the results of the multinomial Logistic regression analysis indicate that the elderly's choice of elderly care model is jointly influenced by multiple factors such as family support, economic conditions, personal characteristics, and regional environment. Among them, family and intergenerational support factors (number of children, children's support) significantly reduce the elderly's tendency to choose community-based or institutional care, highlighting the important role of the family in the traditional elderly care model; while factors such as economic development level (region), personal ability and concepts (income, educational level) significantly increase the probability of the elderly choosing socialized elderly care models. It is worth noting that against the background of rapid economic development and changes in family structure, institutional care and community-based care are increasingly becoming realistic choices for more elderly individuals. This trend reflects that the function of traditional home-based care is gradually giving way to the social elderly care service system. In the future, further improvements should be made to the supply of community and institutional elderly care services to meet the multi-level elderly care needs of different elderly groups.

4. Conclusions

This study empirically deconstructs the complex mechanisms influencing the choice of elderly care models amid China's significant regional disparities, confirming that factors such as family structure, economic status, education level, and regional development collectively shape the preferences of the elderly. The constructed multinomial logistic regression model effectively reveals the differential impacts of these factors, providing a robust analytical tool and

empirical foundation for formulating regionally differentiated elderly care policies. The findings underscore that optimizing the elderly care service system must move beyond a one-size-fits-all approach and adopt strategies tailored to local conditions.

In terms of application feasibility, the proposed hierarchical development strategy—promoting high-end smart elderly care in the eastern regions and strengthening government-led basic security and mutual-aid models in the central and western regions—aligns with the current reality of regional economic development and has high policy relevance. For instance, the "Time Bank" mutual-aid elderly care model piloted in Henan Province and the smart elderly care practices in Shanghai demonstrate strong potential for replication and promotion, offering practical paths to alleviate the structural imbalance in elderly care services.

Future research should progress in several directions: First, expanding the geographical coverage and sample size of micro-surveys to include more provinces with varying development levels would enhance the universality and persuasiveness of the findings. Second, introducing dynamic tracking data would help reveal the evolutionary trends in elderly care choices as socioeconomic conditions change, moving from static analysis to dynamic prediction. Finally, further exploration into the operational mechanisms, service quality evaluation, and effectiveness assessment of specific elderly care models is needed to provide more precise decision-making support for improving the multi-tiered elderly care service system with Chinese characteristics.

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