Empirical Analysis of the Influencing Factors on the Willingness of the Elderly to Age in Rural Areas

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Abstract: *In this paper, we investigated the hot issues of rural pensioners aged over 40 years old, and studied their willingness to age in the countryside and the influence of the four dimensions of individual basic information, life and family characteristics, attitude towards rural pensioners, and conditions of rural pensioners on the willingness of the elderly to age in the countryside. A multivariate logit analysis is applied to explore the internal correlation between the willingness of the elderly to age in the countryside and their influencing factors. Finally, we draw relevant conclusions and make scientific suggestions for the development of rural old-age care in five dimensions: developing the countryside while protecting the environment, supporting facilities and medical care for rural old-age care, recreational activities for rural old-age care, releasing and publicising relevant policies and information, and preferential treatment for old-age care without pension.*

Keywords: *Rural elderly willingness, Influencing factors, Multivariate ordered logit*

1. Introduction

China's aging problem is becoming more and more prominent only child support for the elderly problem is becoming more and more obvious, in the next 30 years, China will face the peak of the only-child pension, and the pension problem is becoming increasingly prominent. Among them, a 'new generation' of elderly people with knowledge, experience and skills is emerging, and they have certain requirements for elderly services and certain expectations in their elderly choices. They choose to retire in the countryside on the basis of factors such as themselves, their families and the rural environment, which will help to solve the problem of the aging of the urban and rural populations, cultivate new points of economic growth in the countryside and form an industrial chain. The development of rural pension business will undoubtedly provide strong industrial support for rural revitalisation.

The development of rural pension industry and the construction of beautiful countryside have an important supporting role for rural revitalisation. In this paper, by combing and analysing the influencing factors of domestic scholars on the demand for rural pension services, we use the method of empirical analysis to study what factors are significantly affected by the willingness of the people to be pensioned in the rural pension. Based on the empirical results, it analyses the reasons affecting the willingness and puts forward corresponding suggestions[1].

2. Literature Review and Research Hypotheses

2.1. Literature Review

China's aging problem is becoming more and more serious, and in the next 30 years China will face the peak of one-child retirement, the problem of old age is becoming more and more prominent. Among them, a 'new generation' of elderly people with knowledge, experience and skills is emerging, and they have certain requirements for senior care services. They choose to retire in the countryside based on their own, family, rural environment and other factors[2]. Most scholars believe that fresh air and good quality water in the countryside are of great benefit to the health and old age of the elderly[3]. Some scholars also point out the value of rural old-age care from a sociological perspective[4]. In addition, the lack of effective demand for rural old-age care, industry planning is inadequate, insufficient supply of old-age care services, lack of professionals, and lagging behind in the training of service teams constrain the urban elderly from returning to the countryside to retire[5].

2.2. Research Assumptions

2.2.1. Household registration

The location of household registration may affect the location of rural pension. Therefore, Hypothesis H1 is proposed: the elderly with rural household registration have a stronger willingness to age in the countryside relative to the elderly with urban household registration.

2.2.2. Place of residence

The lifestyles of rural and urban areas are quite different, and so are the daily routines and recreational ways of the elderly. Therefore, the hypothesis H2 is proposed: the elderly who live in the countryside have a stronger intention to age in the countryside than those who live in the city.

2.2.3. The richness of recreational activities

The richness of recreational activities determines to a certain extent whether an elderly person is willing to try a place other than home care. Therefore, hypothesis H3 is proposed: the higher the richness of recreational activities, the stronger their willingness to age in the countryside.

2.2.4. Concerned about the situation of aging in the countryside

The fact that the elderly caregivers are concerned about the information related to 'aging in the countryside' implies that they are willing to go to the countryside to age in the countryside. Therefore, the hypothesis H4 is proposed: the more the elderly pay attention to rural pension, the stronger their willingness to support rural pension.

2.2.5. Knowledge of rural old-age policy

Those who are willing to go to the countryside to age in place have a higher degree of understanding of the various policies enacted by the government regarding rural old-age care. Therefore, Hypothesis H5 is proposed: the more the pensioners know about rural pension policies, the stronger their willingness to age in the countryside.

3. Questionnaire Design and Descriptive Statistics

3.1. Questionnaire design

The questionnaire takes people over 40 years of age as the target of the survey, creates the online questionnaire, shares the questionnaire link on the Internet and offline invites people who meet the age requirement to conduct questionnaire interviews. Finally, a total of 586 questionnaires were distributed online and offline, and 517 valid questionnaires were recovered, with a recovery rate of 88.23%.

The questionnaire consists of five parts,(1)basic information: gender, the age group, the household registration, place of residence, whether there is property in the place of residence, highest education, monthly income, whether there is a spouse and number of children. (2) Life and family characteristics: the situation of needing help from children or spouses in life, the situation of needing to take care of grandchildren, and the richness of recreational activities. (3) Attitude towards rural pension: concern for rural pension, knowledge of national rural pension policy, and support for national efforts to develop rural pension.(4)Conditions of rural pension: preferring the natural environment of rural pension, convenient transport in rural pension, public facilities in rural pension meeting the requirements of pension, and satisfaction with medical facilities and the service level in rural pension. (5) Expectations related to rural pension: frequency of going to the countryside for pension, choice of a new mode of rural pension, suggestion of governmental measures, and expectation of future development of rural pension.

3.2. Questionnaire Reliability and Validity Test

3.2.1. Questionnaire Reliability Analysis

The formal questionnaire collected 517 copies, in order to ensure the validity of the questionnaire, the obtained questionnaire data for the reliability test. Using SPSS to analyse the reliability of all variables, the reliability of all latent variables is higher than 0.7, and the Cronbach's Alpha coefficient of all variables is 0.818, so the formal questionnaire has a high level of reliability, and it can be used for follow-up research.

3.2.2. Test of data validity of evaluation indicators

The result of KMO test is 0.845, which is greater than the determination standard of 0.6; the significance probability of Bartlett's sphericity test is less than the determination standard of 0.05, thus it can be considered that the structure of the questionnaire and the setting of the questions involved in this paper are scientific and reasonable.

3.3. Descriptive statistics

The proportion of males is 46.4%, and the proportion of females is 53.6%, which is a balanced proportion of males and females in general, and the sample is representative to a certain extent. Bachelor's degree and above accounted for 14.3%, specialist education accounted for 13.3%, general high school/secondary school/vocational high school education accounted for 19.9%, junior high school education accounted for 31.7%, primary school education and below accounted for 20.7%, the sample distribution of educational qualifications is diversified. 27.5 % of people with monthly income of less than 2000 yuan, 25.30 % of people with monthly income of 2001-4000 yuan, 27.7 % of people with monthly income of 4001-6000 yuan, and 27.7 % of people with monthly income of 1000 yuan and 1000 yuan. People had a monthly income of RMB 4001-6000, and 19.5% had a monthly income of more than RMB 6000. 26.7 per cent were aged 40-45, 24.2 per cent were aged 46-50, 19.0 per cent were aged 51-55, 16.8 per cent were aged 56-60, and 13.3 per cent were aged 61 or above. 43.1 per cent of the households were urban, and 56.9 per cent were rural. 43.1 per cent live in urban areas and 56.9 per cent in rural areas. The proportion of those who have property is 62.5 per cent, while the proportion of those who do not have property is 37.5 per cent. The proportion of those with a spouse was 78.7 per cent, while the proportion of those without a spouse was 37.5 per cent. The proportion of those with zero children was 9.1 per cent, with one child 36.2 per cent, with two children 37.5 per cent, and with three or more children 17.2 per cent.

The vast majority of people support the development of the countryside for the elderly, accounting for about 95%; a small proportion of people do not like the natural environment in the countryside, accounting for about 10%; most people think that the traffic in the countryside is generally convenient, accounting for about 40%; the majority of people think that public facilities in the countryside generally meet the requirements for the elderly, accounting for about 35%; the number of people who are satisfied with the level of medical facilities and services in the countryside and the number of people who are dissatisfied with the level of medical facilities and services in the countryside are equally divided, with the same proportion of people who are satisfied with the level of medical facilities and services in the countryside both accounted for about 30%; most of those who are willing to go to the countryside for retirement choose to go to the countryside to experience retirement for a period of time, accounting for about 30%; most of those who are willing to go to the countryside for retirement choose to go to the countryside to experience the new mode of rural retirement in the form of rural garden complexes and sojourns, accounting for about 35%. The proportion of respondents who think the government should'establish a sound rural old-age protection system' is 66.5 per cent; the proportion of respondents who think the government should'improve and implement support policies' is 63.6 per cent; and the proportion of respondents who think the government should'send high-quality caregivers to the countryside and establish a sound rural old-age protection system' is 63.6 per cent. The proportion of those who said'provide high-quality caregivers to villages and establish a sound rural old-age protection system' was 62.5 per cent; and the proportion of those who said'guide the investment of social capital and cultivate rural old-age service enterprises' was 55.3 per cent.

4. Correlation analyses of factors influencing the willingness to age in the countryside

4.1. Definition of variables

The explanatory variable Y is defined as the willingness of the elderly to retire in the countryside, which is assigned a value according to the results of the elderly's answer to the question 'Are you willing to retire in the countryside?'. The variable Y is defined as the willingness of the pensioners to retire in the countryside, which is assigned a value according to their answers to the question 'Are you willing to retire in the countryside?': 'Very willing' is assigned a value of 1; 'Willing' is assigned a value of 2; 'Generally willing' is assigned a value of 3; 'Unwilling "The lower the value, the stronger the willingness of the elderly to retire in the countryside. The results of the survey show that 18.7% of the pensioners have no intention to retire in the countryside, 81.30% of the pensioners have the

intention to retire in the countryside, and 16.2% of the pensioners have a strong intention to retire in the countryside. The explanatory variable, X, consists of five parts of the questionnaire design.

4.2. Model construction

This paper establishes a multivariate ranked choice logit model:

$$\gamma^* = \beta' x + \varepsilon, \quad \gamma_i = \begin{cases} 1 \ if \ \gamma_i^* \leq c_1 \\ 2 \ if \ c_1 \leq \gamma_i^* \leq c_2 \\ 3 \ if \ c_2 \leq \gamma_i^* \leq c_3 \\ 4 \ if \ c_3 \leq \gamma_i^* \leq c_4 \\ 5 \ if \ c_4 \leq \gamma_i^* \leq c_5 \end{cases}$$

Where γ^* is an unobservable latent variable. y_i is an observation, $x=(x_1, x_2,...,x_{19})T$, $\beta=(\beta_1, \beta_2,...,\beta_{19})T$. If $\gamma_i^* < \gamma_j^*$, then $y_i < y_j$. ε is an independently and identically distributed random variable, whose distribution function, $F(x)$, is obeying an extreme value distribution. According to the above model, the probability of each γ_i can be expressed as:

$$P_r(y_i = 1 | x, \quad \beta, \quad \gamma) = F(\gamma_1^* - X'\beta)$$

$$P_r(y_i = 2 | x, \quad \beta, \quad \gamma) = F(\gamma_2^* - X'\beta) - F(\gamma_1^* - X'\beta)$$

$$P_r(y_i = 3 | x, \quad \beta, \quad \gamma) = F(\gamma_3^* - X'\beta) - F(\gamma_2^* - X'\beta)$$

$$P_r(y_i = 4 | x, \quad \beta, \quad \gamma) = F(\gamma_4^* - X'\beta) - F(\gamma_3^* - X'\beta)$$

$$P_r(y_i = 5 | x, \quad \beta, \quad \gamma) = 1 - F(\gamma_4^* - X'\beta)$$

By the maximum likelihood method, the limiting value of γ and the coefficient vector β will be estimated simultaneously.

$$L(\beta, \quad \gamma) = \sum_{i=1}^{N} \sum_{j=1}^{5} \log \left(P_r(y_r = j | x, \quad \beta, \quad \gamma) \right) \cdot 1(y_i = j)$$

where N = 517 and $1(\cdot)$ is the switching function, conditioned to take 1 for true and 0 for false.

4.3. Model testing

Ordered Logistic regression makes the assumption of parallelism that the slopes of all dependent variable categories must be equal. Only if the model passes the parallelism test, the multi-classification ordered Logistic model can be applied. From the parallelism test the p-value is 0.974 and the result is insignificant, then the model has not violated the assumption of constant slope and is reasonable.

From the model fitting information, the chi-square value is 334.264, the degree of freedom is 40, and the P-value = 0.000 < 0.1, the result shows that at least one of the independent variables has a biased regression coefficient that is not 0 at the significance level of 0.1, which indicates that the model with predictor variables can provide better information than a purely constant model.

4.4. Analysis of model results

According to the parameter estimates of the model results, five indicators, namely, household registration(P<0.05), residence (P<0.05), richness of recreational activities (P<0.05), concern about rural old-age care (P<0.05), and knowledge of national rural old-age care policies (P<0.05), have a significant impact on the willingness of pensioners to age in the countryside.

The partial regression coefficient of 'household registration' is 0.494, which corresponds to urban household registration, and the coefficient of rural household registration has been set to 0 by the system, which means that pensioners with urban household registration also have the intention to retire in the countryside compared with those with rural household registration. The partial regression coefficient for 'place of residence' is 0.741, corresponding to the current place of residence in the city, and the coefficient for the current place of residence in the countryside has been set to 0 by the system,

which indicates that the pensioners living in the city are willing to go to the countryside for pensioners'old age, and that there is a positive outlook for the development of pensioners' old age in the countryside. The partial regression coefficients of'richness of recreational activities' are -1.824, -1.876, -1.580, -1.466 corresponding to very rich, rich, generally rich and not rich in recreational activities respectively, and the coefficient of very not rich has been set to 0 by the system, which indicates that as the level of richness of people's recreational activities rises, the risk of their willingness to retire in the countryside decreases. , the risk of a decline in their willingness to retire in the countryside is getting lower and lower. In other words, as the richness of recreational activities in life decreases, the willingness of people to age in the countryside to age in the countryside also decreases. The partial regression coefficients of'concern for rural pension' are -5.055, -4.503, -3.744, -2.651 corresponding to very concerned, concerned, generally concerned, and unconcerned respectively, and the coefficient of very unconcerned has been set to 0 by the system, which means that with the increase of the level of concern for rural pension, the risk of decreasing the willingness to retire in the countryside is getting lower and lower. the risk of declining willingness is getting lower and lower. That is, as the level of concern for rural old-age care decreases, the willingness of pending pensioners to retire in the countryside will also decline. The partial regression coefficients of'knowledge of the national rural pension policy' are 1.600, 2.335, 2.175, 2.605 corresponding to very good knowledge, knowledge, general knowledge and no knowledge respectively, and the coefficient of very bad knowledge has been set to 0. This indicates that the more the pensioners know about the national rural pension policy, the stronger the willingness to retire in the countryside will to retire in the countryside is stronger.

5. Conclusions and recommendations

5.1. Conclusion

Pensioners with urban household registration and currently living in urban areas have the intention to retire in the countryside, but the degree of pensioners' intention to retire in the countryside is higher among those with rural household registration. The richness of recreational life positively affects the willingness to retire in the countryside, and the more the elderly-to-be pursue a rich recreational life, the greater their willingness to retire in the countryside. The degree of attention to rural old-age care positively affects the willingness to age in the countryside, the lower the attention to rural old-age care of the elderly-to-be, the lower the willingness to age in the countryside. Knowledge of rural policy positively affects the willingness to age in the countryside, the more the elderly-to-be know about rural pension policy, the greater their willingness to age in the countryside. Short-term experience and rural residence pension mode are more popular. In addition, the frequency of the time when the expectant pensioners who are willing to go to the countryside to retire choose rural pension, experience for a period of time accounts for the majority, followed by choosing the rural complex and residence pension mode, the number of choices of the land-based pension mode is only second to the rural residence mode, and the willingness to replace the pension funds with the residence base is larger.

5.2. Recommendations

Introducing the economy of the urban elderly to the countryside can unblock the economic barriers between urban and rural areas. Attract the urban elderly with high consumption ability to retire in rural areas, promote the development of rural related industries, promote the growth of rural economy, and promote the self-supply of rural economy, so as to provide better pension services and attract outsiders to retire in rural areas. The questionnaire survey is organized in the open question of " about the future development of rural pension expectations and recommendations, " summarizes the keywords, repeats the expectations of more points, and analyzes the above conclusions, and puts forward targeted suggestions :

5.2.1. Green construction of rural pension

While the government promotes the development of rural pension, it should not neglect the protection of the natural environment of the countryside. The countryside can attract outsiders to retirement, its biggest highlight is the natural environment. Local villages according to the local situation, the concept of ecological civilisation into the local rules and regulations, set the appropriate punishment mechanism, increase the cost of violating environmental protection.

5.2.2. Enhance the quality of supporting facilities and medical care for the elderly in the countryside

Comprehensive layout, system improvement of pension services and other related medical public service facilities. Strengthen the skills training of relevant service personnel, purchase and equip related medical facilities, and improve the level of medical services related to rural elderly care services. Further improve the public service facilities of rural old-age care institutions, build convenient life service circles such as logistics distribution and convenient supermarkets ; planning the layout of cultural centers, stadiums and other public service facilities ; promote the transformation of barrier-free facilities such as ramps and public toilets that are closely related to the lives of the elderly.

5.2.3. Increase policy publicity and streamline policy interpretation

The government has stepped up publicity for its pension policies, refining and interpreting policy information that is easy to understand. Timely updates and releases of rural pension policies have been made to increase social attention to rural pension, and to stimulate the willingness of the elderly to age in the countryside. The mainstream media have strengthened their interpretation of the relevant policies, so that people in need of old age care can obtain more accurate policy information in a more efficient manner.

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