

Study on Influencing Factors of Reemployment of the Elderly Population

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Abstract

Since China officially entered the aging society in 2000, the aging of my country has been increasing. With the reduction of the labor force in recent years, it is of great significance to strengthen the development of human resources for the elderly. On the basis of the existing research results related to the human resources of the elderly, the methods of data collection, qualitative analysis and quantitative analysis of the establishment of econometric models are comprehensively used to study the social labor participation of the elderly population. Based on the CHARLS2018 questionnaire, this paper obtains data on factors such as age, gender, education and health status of the elderly population and social labor participation status, and constructs a Logit model based on the results of qualitative and statistical analysis to study the impact of human capital factors on the elderly population's participation in social labor.

Keywords

Human Capital; Elderly Population; Social Participation.

1. Literature Review

1.1. Change of Labor Supply Pattern after 2010

Since 2010, the supply pattern of labor in my country has changed from oversupply to supply and demand balance and gradually began to change to insufficient supply. Since the reform and opening up, my country's population has continued to expand, from 987.05 million in 1980 to 1,411.78 million in 2020. The size of the working-age population experienced a turning point around 2011. The size of the population aged 15-59 began to decline after reaching a peak of 940.72 million in 2011, and dropped to 894.36 million in 2020, a decrease of 46.36 million in 9 years. The proportion of people aged 15-59 in the whole age group dropped from 70.14% to 63.35%. The size of the population aged 15-64 also began to decline after reaching a peak of 1,005.82 million in 2013. By 2020, it will drop to 967.78 million, a decrease of 38.04 million in seven years. The reduction in the size of the working-age population means that my country's demographic dividend has ended, and the scale of labor supply will continue to decline in the future.

1.2. There is a Labor Shortage Crisis

At this stage, Chinese young people are facing the pressure of rising housing prices, rising education costs, and the cost of family childcare is too high. The overall marriage rate and fertility rate in the society have dropped rapidly, resulting in a low birthrate and an aging population in China. The gradual deepening of the problem. Although my country has opened the two-child policy and even the three-stage policy to continuously increase fertility benefits, the implementation of these policies has not improved the people's willingness to bear children. The current low level of fertility, the disappearance of the demographic dividend brought about by the deepening of population aging, the rise in labor costs, and the diminishing marginal efficiency of capital have caused changes in the quantitative and qualitative structure of the

population; the advantage of the age structure of the labor force has weakened, the comparative advantage supporting the traditional development path of the manufacturing industry has gradually disappeared, and the phenomenon of short supply in the labor market symbolizes the previous era of unlimited labor supply, that is, the era of demographic dividends has become a thing of the past; The labor quality structure has been optimized, abandoning the extensive input of factors that revolved around the demographic dividend in the past, and gradually transformed it into a form of improving the efficiency of factor utilization, creating new momentum for the country's economic and social development. With the continuous decline of the birth rate and the deepening of the population aging trend in all provinces and cities across the country, the "Lewis turning point", that is, the turning point from labor surplus to shortage, has arrived. The supply and demand of labor will directly affect the long-term development of the economy. The potential of the first demographic dividend will be deeply excavated, and at the same time, the development of the second demographic dividend will be started.

1.3. The Current Structural Problems of Labor Resources

The report of the 19th National Congress of the Communist Party of China proposes to "promote the connection between the birth policy and related economic and social policies, actively respond to the aging of the population, and strengthen the research on population development strategies." Labor resources are an important factor in promoting economic development. Pillar, my country's economic development has been largely attributed to the demographic dividend for a long time, but this dividend is gradually disappearing. The main problem of my country's population economy in the future is the structural problem, that is, the elderly population accounts for a large proportion, the labor force accounts for a small proportion, and the potential Insufficient labor resources.

The main problems of my country's population at present are the low birth rate and insufficient labor resources; the aging population continues to deepen, and the proportion of the elderly population in the total population continues to increase; the proportion of the labor force decreases, and the average labor dependency ratio rises. In the context of an aging population and an ageing structure of the labor force, the development and utilization of human resources for the elderly is an important means to solve the shortage of labor resources and realize the secondary dividend of the population.

Theoretically, if the working-age population is evenly distributed in age, the proportion of the 45-64-year-old group should account for 40% of the 15-64-year-old population. Exceeding this critical value indicates that the working-age population pyramid is likely to have emerged. The trend of the upper part being wider and the lower part being narrow, the working-age population is aging. In 2017, the aging level of China's labor force has exceeded the critical value of 40%, and as of 2018, it has reached 41.36%. At present, the growth rate of labor aging remains relatively stable. The growth rate of labor aging is positive in most years. The increase in the proportion of the older labor force in the working age population means that the structural aging of the working age population is becoming increasingly severe.

To sum up, my country's current population structure is aging and the supply of labor resources is declining, which will lead to a shortage of labor resources and insufficient supply of labor in my country, and at the same time, there will be more elderly people. The rational development and utilization of the elderly human resources is of great significance for increasing the labor participation rate and promoting high-quality economic development.

2. Research Design

2.1. Becker's Human Capital Theory

Becker is very effective in the research of human capital theory, and has published a series of human capital research books such as Human Capital and Economic Analysis of Fertility Rate. His book Human Capital is regarded by western scholars as the starting point of the human capital investment revolution. In this book, Becker emphatically analyzes the relationship between the investment cost and benefit of education as one of the most important investment channels of human capital, and analyzes the practical economic significance of skills training, especially human capital training. He believes that investment in human capital comes from the improvement of people's health, education and skills.

2.2. Sample Selection

This paper uses the data of the China Health and Retirement Longitudinal Study (CHARLS) in 2018. The main reason for using CHARLS2018 is that the survey aims to collect high-quality microdata on households and individuals of middle-aged and elderly people aged 45 and above in China, covering 150 county-level units, 450 village-level units, and about 10,000 households. With a population of 17,000, it is one of the most authoritative databases in my country's aging research, with good representation and reliability. Among them, the latest 2018 tracking survey data obtained 19,829 samples. This paper selects samples of elderly people over 55 years old and after removing missing values, the final effective sample size is 9048 people.

2.3. Model Design and Variable Definition

Since the problem of participation of the elderly in social labor decision-making studied in this paper is a probability problem, and the explained variables are discrete variables (1=yes, 0=no), the regression coefficient ratio of the Logit model in the binary choice model. The regression coefficient of the Probit model is easier to explain its economic significance, so the Logit model of binary selection is selected, and the model is as follows.

Consider the two-point distribution probability of y given x :

$$\begin{cases} P(y = 1 | x) = F(x, \beta) \\ P(y = 0 | x) = 1 - F(x, \beta) \end{cases} \quad (1)$$

$F(x, \beta)$ is the cumulative distribution function of the "logistic distribution", we have

$$P(y = 1 | x) = F(x, \beta) = \Lambda(x'\beta) \equiv \frac{\exp(x'\beta)}{1 + \exp(x'\beta)} \quad (2)$$

Then get the Logit model accordingly

$$\text{Logit}(p(y = i | x_i)) = \beta_0 + \sum \beta_i x_i \quad (3)$$

Among them, y represents the reemployment situation, 1 is employment, 0 is unemployed, x_i is each influencing factor, and β is a parameter.

3. Empirical Results

3.1. VIF Test

It can be seen from Table 1 that the variance inflation factor of each variable is much less than 10, and there is no multicollinearity between variables.

Table 1. Variance inflation factor (VIF) test

Variables	VIF	1/VIF
Age	1.14	0.877277
Gender	1.21	0.823703
Self-assessed Health	1.1	0.907002
Educational Level	1.5	0.664505
Vocational Training	1.03	0.971865
Mean VIF	1.21	

3.2. Analysis of Univariate Influencing Factors

Table 2 presents the Logit regression analysis of the influence of individual factors on the elderly population's participation in social labor decision-making. Model 1 shows the effect of a single age variable on the participation of the elderly population in social labor decision-making. The results show that the influence of the age variable on decision-making is positive. Every time the value of the age variable increases by 1, the possibility of the elderly population participating in social labor is 2.282 times greater. Sex dropped by 69.5%. And the variable is significant at the 1% statistical level, the LR statistic of the significance of the entire model is 842.47, and the corresponding p value is 0.000, indicating that the model is highly significant. This shows that the age of the elderly population has a huge impact on their participation in social labor decision-making, and younger seniors are more willing to participate in social labor than older seniors.

Model 2 shows the effect of single-sex variables on the participation of the elderly in social labor decision-making. The results show that the gender variable has a significant impact on the participation of the elderly population in social labor. The possibility of the male elderly population participating in social labor is 3.126 times that of the female elderly population participating in social labor. And the variable is significant at the 1% statistical level, the LR statistic of the significance of the entire model is 432.96, and the corresponding p value is 0.000, indicating that the model is highly significant. This shows that the gender of the elderly population will have a greater impact on their participation in social labor decision-making. Compared with elderly women, elderly men are more willing to participate in social labor. Model 3 shows the effect of a single self-rated health variable on the elderly population's participation in social labor decision-making. The results show that the impact of self-assessed health variables on decision-making is positive. For each increase in the value of the self-assessed health variable by 1, the possibility of the elderly population participating in social labor is 0.564 times greater. In other words, the self-assessed health of the elderly population increases by one level, the possibility of participating in social labor increased by 56.4%. And the variable is significant at the 1% statistical level, the LR statistic of the significance of the entire model is 295.41, and the corresponding p value is 0.000, indicating that the model is highly significant. This shows that the health status of the elderly population has a greater impact on their participation in social labor decision-making. Compared with the elderly with poor health conditions, the physically and mentally healthy elderly are more willing to participate in social labor.

Model 4 shows the effect of a single educational level variable on the participation of the elderly in social labor decision-making. The results show that the impact of the educational level variable on decision-making is positive. For each increase in the value of the educational level variable by 1, the possibility of the elderly population participating in social labor is 0.293 times greater. In other words, the educational level of the elderly population increases by one level, the possibility of participating in social labor increased by 29.3%. And the variable is significant at the 1% statistical level, the LR statistic of the significance of the entire model is 354.05, and the corresponding p value is 0.000, indicating that the model is highly significant. This shows

that the education status of the elderly population will have a greater impact on their participation in social labor decision-making. Compared with the elderly with lower education level, the elderly with higher education are more willing to participate in social labor.

Table 2. Logit regression results of the impact of human capital factors on the reemployment of the elderly

Variables	Model1	Model2	Model3	Model4	Model5	Model6
Age	3.282*** (25.47)					3.224***(23.68)
Gender		3.126*** (19.98)				3.103***(17.71)
Self-assessed Health			1.564***(16.98)			1.458***(13.02)
Educational Level				1.293***(18.45)		1.088***(5.15)
Vocational Training					10.62***(5.79)	2.63***(5.30)
LR	842.47	432.96	295.41	354.05	109.79	1593.98
PseudoR2	0.0936	0.0481	0.0328	0.0393	0.0122	0.1771

Note: The significance level is $p^* < 0.1$, $p^{**} < 0.05$, $p^{***} < 0.01$, and the Z value in parentheses

Model 5 shows the effect of a single occupational training variable on the participation of the elderly population in social labor decision-making. The results show that the variables of vocational training have a significant impact on the participation of the elderly in social labor. The possibility of the elderly who have received vocational training to participate in social labor is 10.62 times that of the elderly who have not received vocational training. And the variable is significant at the 1% statistical level, the LR statistic of the significance of the entire model is 109.79, and the corresponding p value is 0.000, indicating that the model is highly significant. This shows that the gender of the elderly population has a great impact on their participation in social labor decisions. Compared with the elderly population who have not received vocational training, the elderly who have received vocational training are more willing to participate in social labor.

3.3. Analysis of Multivariate Influencing Factors

Model 6 shows the influence of five variables of personal factors on the participation of the elderly in social labor decision-making. The results show that the influence of the five variables on the elderly population's participation in social labor decision-making is lower than that of the single-factor regression. Among them, age, gender and self-assessed health have smaller declines, and education levels and vocational training have larger declines. All variables are significant at the 1% statistical level, the LR statistic of the significance of the entire model is 1593.98, and the corresponding p value is 0.000, indicating that the model is highly significant. This shows that the personal characteristics of the elderly population will have a great impact on their participation in social labor decision-making, and the male elderly population who are younger, have a higher education level, and have received vocational training are more willing to participate in social labor.

4. Research Conclusion

Age and gender factors have a significant impact on the participation of the elderly in social labor. Among the human capital factors, self-assessed health, education level and vocational training also have a significant impact on the participation of the elderly in social labor, but the impact is smaller than that of age and gender. Age and gender are established factors and cannot be improved, while human capital factors can be improved through the day after tomorrow.

Therefore, the social labor participation of the elderly population in my country can be enhanced by improving the level of health care in my country, and carrying out re-education and vocational training for the elderly population.

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