Correlation Analysis between Internet and Non-agricultural Employment of Rural Labor Force in China

Tingting Tan

Harbin University of Commerce, School of Finance and public management, 1 Xuehai Road, Songbei District, Harbin, Heilongjiang Province China, 150028

tingting8559@163.com

Keywords: Internet; Rural labor force; Off-farm population

Abstract. China's rural areas have a large number of people need employment, to solve the employment problem is the top priority of the Chinese government. However, due to the reduction of arable land area, the change of agricultural production mode and the change of labor force employed population, the rural non-agricultural labor force population is surging. How to obtain employment for this part of labor force has become an urgent social problem. The interest of the Internet has created many jobs and provided many employment opportunities. Therefore, whether the Internet will have a positive impact on the non-agricultural employment of rural labor force in China, or what factors will have an associated effect with the Internet to promote the employment of rural labor force? This paper conducts an empirical analysis on this issue, and the results show that the age, gender, education level and marital status of the rural labor force in China are closely related to it, which will also provide Suggestions for the Chinese government to put forward policies on sex.

Introduction

By the end of 2016, the total number of migrant workers in China had reached 2.281 billion, an increase of 1.5 percent compared with 2015, but the growth rate continued to decline for many years, according to the 2016 migrant workers monitoring survey report. Corresponding to this trend, the shortage of migrant workers in the eastern coastal areas is becoming increasingly serious, and the "demographic dividend" supporting the rapid development of China's economy is gradually disappearing and turning into a "population deficit". Faced with this situation, many scholars in China began to discuss whether the lewis turning point has arrived. [1][2][3] Although different scholars hold different views on the answer to this question, it is undeniable that China's rural surplus labor force is decreasing. Even so, there is still some room to delay the arrival of the lewis turning point and make further use of the demographic dividend. In 2015, the added value of China's primary industry only accounted for 8.8% of GDP, and this proportion is still in the process of continuous decline, but the employment of the primary industry still accounts for 28.3% of the total employment. (1) too many workers concentrated in the primary industry in the excessive number of workers concentrated in the primary industry, is not conducive to the income of farmers, promote the new urbanization construction, is not conducive to the modernization of agricultural production and large-scale operation.

Since the reform and opening up, China's economy has experienced rapid growth, people's living standards have steadily improved, and urbanization and modernization have developed rapidly. However, the urban-rural dual system still exists and the development inequality between urban and rural areas is serious. Compared with cities, rural residents' income is low, rural social development is slow, and the gap between urban and rural areas is large. An

  DOI: 10.25236/sser.2019.091

important measure to narrow the gap between urban and rural areas and improve farmers' income is to promote the transfer of rural labor force. At present, China is in an important period of economic structure transformation, which needs to guide the labor force from the primary industry to other industries.

At present, China is in the transition period of economic structure. How to guide the labor force to transfer from the primary industry to other industries is the basis of China's economic structure transformation. There is no doubt that the development of the Internet has provided new ways for people to find jobs and broadened the ways for workers to find jobs. Especially for the rural labor force, there are few employment paths in rural areas, and most of the employment areas are agricultural sectors with low wages. The use of the Internet will help the rural labor force to obtain more external employment information, thus making it easier for the workers in the agricultural sector to transfer to other sectors. This paper will empirically test how the use of Internet affects the employment choice of rural labor force through empirical analysis and CFPS data. The empirical results show that the use of Internet significantly improves the off-farm employment level of rural labor force and makes it easier for rural labor force to engage in off-farm work.

What factors lead to the concentration of farmers' employment in the primary industry and affect their off-farm employment choice? Many scholars on agriculture, rural areas and rural issues on the Internet and non-agricultural employment of rural labor force in China have conducted a detailed analysis, and the influencing factors mainly focus on the human capital, social capital, population, family characteristics and other factors of rural labor force. Among them, human capital represented by education level, skill training and health condition is not only an important factor affecting the off-farm employment of rural labor force, but also determines the industry selection and wage level of off-farm employment. [4][5][6] As a society that attaches great importance to "relationship", social capital or social network can positively promote the off-farm employment of migrant workers, especially their entrepreneurial behavior, and also have an important impact on their work type and income. In addition, the rural labor force Gender, age, family burden and other personal and family characteristics as well as land transfer, social security and other institutional factors will also have a very important impact on their non-agricultural employment.

Data source and model setting

Data sources. The data used in this paper are from the 2018 summer survey conducted by the school of finance, Harbin university of commerce. The investigation included 57 administrative villages in KunShan city, ChangShu city and WuXi city, JiangSu province. The main form of the investigation was to send investigators to the grass-roots level and fill in questionnaires in the form of interviews in the households. A total of 698 questionnaires were recovered. According to the needs of this study, 623 samples were obtained after removing the questionnaires that were missing the indicators required by this study.

Model Setting. This paper mainly studies the impact of the Internet on off-farm labor transfer in rural areas. It takes whether there is a transition to off-farm labor as a binary problem. The probability of the transition is set as P, which is related to the independent variables x1, x2, x3... , the lo-gistics regression model between xp is:

$$P = \frac{\exp(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_n X_n)}{1 + (\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_n X_n)}$$

It can be seen that the probability of rural labor force not transferring to non-agricultural industries is:

$$1 - P = \frac{1}{1 + (\beta_0 + \beta_1 X_1 + \ldots\ldots + \beta_n X_n)}$$

Logit model of rural labor force transfer can be expressed as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_n X_n + \varepsilon$$

Where, Y refers to whether the transition occurs, β_n is the estimation coefficient, and X_n is the autovariation , ε is a random perturbation term.

Variable selection. (1)The dependent variable. The dependent variable is whether the labor transfer occurred in 2017. If the interviewee left the primary industry and engaged in the secondary and tertiary industry for more than half a year, the non-agricultural transfer was considered to have occurred; otherwise, the non-agricultural transfer did not occur. (2)The independent variable.The independent variables selected in this study are divided into core independent variables and control variables. Among them, the core independent variable is Internet use, while the control variable is gender, age, education, marital status and political status.According to the questionnaire and data, the definition and assignment of the selected indicators in this study are shown in table 1.

Empirical analysis

Multicollinearity test. In order to ensure that there is no correlation between all independent variables, the multicollinearity test is first performed on all independent variables before Logit regression analysis. In this paper, variance expansion factor (VIF) and tolerance value (1/VIF) were selected as evaluation indicators. It was generally considered that the variance expansion factor was less than 10.0 and the tolerance value was greater than 0.10. It could be concluded that there was no collinearity between independent variables. In this paper, statistical analysis software Stata14 is used to calculate whether there is multicollinearity between each independent variable. First, Internet use is taken as the dependent variable, and the other five variables are taken as independent variables. The test results showed that the variance expansion factors were all less than 1.153, and the tolerances were all above 0.89. Obviously, there is no multicollinearity between the Internet usage variable and other independent variables. Then, the independent variables such as gender, age, marital status, education level and political status were selected successively and the above operations were repeated. All regression results showed that the variance inflation factor was lower than 10.00 and the tolerance was higher than 0.10. Therefore, it can be determined that there is no multicollinearity among the six independent variables selected in this paper, namely Internet use, gender, age, marital status, education level and political status.

Binary Logit regression analysis. By using Stata14 software to conduct binary Logit regression analysis of all indicators, this paper studies the influence of Internet use on off-farm transfer of rural labor force, and the regression results are shown in table 1. As can be seen from table 1, Internet use, gender, age, education level and marital status all have a significant impact on the off-farm transfer of rural labor force. Among them, age has a negative effect and the rest has a positive effect. Political status did not pass the significance test. The regression results of Internet usage indicators in model 1 show that the probability of non-farm transfer increases by 45.49% for each grade. In model 2, after the addition of control variables, the probability of off-farm transfer increased by 30.22% for each grade of increase. This not only shows that the use of Internet does promote the non-agricultural transfer of rural labor force, but also that mobile phone Internet access has a more obvious role than broadband Internet access. On the one hand, the use of the Internet makes it convenient for rural labor to access employment information, greatly reducing the cost of obtaining non-agricultural employment information, and more employment options are available. On the other hand, they can learn new knowledge and skills through the Internet, so as to improve their human capital and adapt to the needs of the labor market.

Table 1 Influence of Internet use on off-farm transfer of rural labor force Logit regression results

The variable name	Model 1		Model 2	
	Regression coefficient	Standard error	Regression coefficient	Standard error
Internet use	0.3654***	0.1278	0.2354**	0.1012
Gender	-	-	1.3265***	0.3268
Age	-	-	-0.0154**	0.0087
Education level	-	-	0.3168***	0.0987
Marital status	-	-	0.3879**	0.1987
Political landscape	-	-	-0.0657	0.1324

Note: the values in brackets are robust standard errors; ***, ** and * respectively represent the explanatory variable coefficient of Significant at levels of 1%, 5%, and 10%.

The regression results of gender indicators in model 2 show that there is an obvious relationship between the non-agricultural transfer of rural labor force and gender. Other things being equal, the probability of non-agricultural transfer is 125.46% higher for rural men than for women, that is to say, the probability of non-agricultural transfer is lower for rural women than for men. Possible reason is influenced by the traditional family division of labor, the male migrant workers to obtain sources of family life, women in the home more responsible for housekeeping and pension fondle baby, and male gender advantages due to the more popular in the labor market, rural women to non-agricultural

transfer path is relatively narrow, so it is more men for the proportion of labor transfer.

The regression results of age index in model 2 show that there is a significant negative correlation between the non-farm transfer of rural labor force and age. The probability of non-farm transfer decreases by 2.01% with every increase of age by 1 year. That is to say, the older the rural labor force, the smaller the probability of non-agricultural transfer, and the younger the rural labor force is more willing to choose non-agricultural employment, leaving the primary industry. Compared with the younger rural labor force, the elderly have heavier family burden. Not only do they have parents and children to support, but their physical condition is not as good as that of the young people who are popular in the market. Family pressure and market demand prevent the non-agricultural transfer of the elderly.

The regression results of education level in model 2 show that there is a significant positive correlation between the off-farm transfer of rural labor force and education level. The probability of non-farm transfer increased by 30.98% for every level of education. This shows that education background has a very important impact on off-farm employment, and the more educated the rural labor force is, the more inclined to off-farm transfer. The more educated the rural labor force is, the higher their learning ability and education level will be, the more welcome the labor market will be, the stronger the employment competitiveness will be, the higher the income will be. Therefore, the rural labor force with a high degree of education has a higher probability of non-agricultural transfer.

The regression results of marital status in model 2 show that there is a significant positive correlation between non-agricultural transfer of rural labor force and marriage. When other conditions remain unchanged, the probability of non-agricultural transfer of married labor force is 38.23% higher than that of unmarried labor force, and married rural labor force is more inclined to non-agricultural transfer. The possible reason is that marriage brings new family burden. Compared with lower agricultural income, married rural labor force chooses to obtain more remuneration through off-farm transfer to increase income and relieve family burden.

Conclusion and revelation

This paper empirically analyzes the impact of Internet use on off-farm employment of rural labor force and solves the endogenous problems in the model by selecting two instrumental variables. The main conclusions of this paper are as follows: first, the use of the Internet can improve the probability of non-agricultural employment of rural labor force by 66.51 percentage points. If regression is carried out only with Probit model without considering endogenous, the role of the Internet will be overestimated. Second, the Internet is a skill-biased type of technological progress, which has a greater impact on highly educated workers. On the one hand, the Internet is complementary to highly skilled workers; on the other hand, highly skilled workers use the Internet more for learning knowledge and work, while low-skilled workers tend to use the Internet for leisure and entertainment. Third, the use of the Internet can not only improve the probability of rural labor force becoming wage gainers, but also promote their entrepreneurship and self-employment, and the impact on the former is greater than the latter. Fourth, the Internet at least from the improvement of workers' social capital, reduce housework labor time two channels affected the choice of non-agricultural employment.

The conclusion of this paper has important policy implications. First of all, promoting the popularization of

Internet in rural areas is not only an important measure related to people's livelihood, but also conducive to improving the non-agricultural employment of rural labor force. The non-agricultural employment of rural labor force is of great significance not only to solve the plight of the relative shortage of labor force and improve economic vitality, but also to increase farmers' income and narrow the gap between urban and rural income. Non-agricultural employment and the use of the Internet can also reduce the cost for farmers to integrate into the city, and play a non-negligible role in building a new urbanization and improving the quality of urbanization. Secondly, due to the low level of human capital of rural labor force, the limited use of the Internet restricts the effective play of the role of the Internet, so the government should strengthen the Internet training of rural labor force, so that more rural labor force can use the Internet skillfully and promote

Further development of economies of scale of the Internet. Finally, the impact of Internet on entrepreneurial activities is relatively small, which requires the government to further regulate the market of Internet entrepreneurship, provide necessary technical support and financial subsidies for entrepreneurial activities in rural areas, in order to better play the due role of the Internet. In addition, accelerate the construction of Internet infrastructure, improve the extent of rural Internet popularization. The use of the Internet is conducive to the flow of information. Rural labor force can know the employment information of other places without leaving home, which greatly reduces the cost of information transmission, promotes the non-agricultural transfer of rural labor force, is conducive to increasing income, narrowing the urban-rural income gap, and promoting rural social development. Therefore, it is necessary to further strengthen the construction of Internet infrastructure, continuously improve the popularity of the Internet in rural areas, and reduce the cost of access to the Internet for rural residents. positive

We will guide and encourage rural residents to use the Internet, attach importance to the role of mobile Internet, and help rural labor force better obtain employment information through the Internet through lectures, centralized training and other means. At the same time, increase rural education investment, improve the cultural quality of rural labor force. In addition to the use of the Internet, the degree of education also affects the off-farm transfer of rural labor force to a certain extent, and higher cultural literacy has a significant positive impact on the off-farm transfer. Therefore, it is necessary to continuously increase rural education investment, strengthen rural education infrastructure construction, improve rural teaching conditions, and constantly improve the cultural level of rural labor force. At the same time, vocational education should be strengthened to help rural labor force master professional skills, improve human capital, adapt to market demand, and promote non-agricultural transfer of rural labor force . Although the Internet facilitates the dissemination of information, Internet fraud and information flooding are becoming more and more serious, and the network is full of a large number of false information that is not easy to identify, which poses a great challenge for Internet users to distinguish the true from the false. Government departments should strengthen the supervision of Internet information and use various means to suppress the generation of false information. And spread, reduce the loss caused by false information; Establish an official employment information release platform to enhance the credibility of information and improve the matching efficiency between employers and labor force

References

[1] Tang Xi. Characteristics, connotation and enlightenment of "shortage of migrant workers" twice in China since the new century [J]. Theory guide,2017(11):71-75.

[2] Tang xi, ren zhijiang. Shortage of migrant workers and lewis turning point in China [J]. Journal of northwest a & f university (social science edition),2018,18(02):101-107.

[3] Jiang haixi, Jiang ling. Revitalization of rural human capital: a study on the return willingness of migrant workers in China [J]. Journal of sichuan university (philosophy and social sciences edition),2019(05):151-161.

[4] Xiao yiran, li Zhibing, dong fayao. Study on the employment of rural surplus labor force in ethnic minority areas under the background of rural revitalization [J]. Agricultural economy,2019(09):69-71.

[5] Yang Zhiqing. How education affects agricultural green productivity -- an empirical analysis based on different forms of education in rural China [J]. China soft science,2019(08):52-65.

[6] Liu Yinong. Impact of Internet use on off-farm transfer of rural labor force [J]. Rural science and technology,2019(24):19-21.