

The Impact of Labor Transfer on Farm Households' Adoption of Forestry Technology

— Based on the survey data in Hunan, Jiangxi and Fujian provinces

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Abstract. The logistic regression method has been used to analyze the impact of labor transfer on farm household' technical requirements and access to forestry technology, based on 247 household data of survey in Hunan, Jiangxi and Fujian provinces which are three main *Camellia oleifera* producing areas. The results showed that labor transfer has significant effect on farm households' adoption of farming techniques and channels, the high level of labor transfer is not conducive to the adoption of new techniques. Farm households with labor loss have little interest in advanced the techniques of *Camellia oleifera* cultivation and be more willing to engage in traditional productive activities. While *Camellia oleifera* growers with the high level of labor transfer tend to get new technology from various ways other than the technical service from government, there is less demand for new techniques in these households. Therefore, for agro-tech departments, it is necessary to pay attention to the technical choice of farmers when developing agro-technical popularization policies, meanwhile, it is needed to focus on the influence of roles differentiation, family characteristics, land scale and other aspects on farm households' adoption of farming techniques and channels, to improve China's forestry technology contribution rate to forestry economic growth more practically.

Introduction

China is the world's largest *Camellia oleifera* producing area, *Camellia* cultivation to alleviate the employment pressure of rural idle labor, increase the income of mountain farmers have a huge impact. In order to increase farmers' income, so that we cannot be separated from the increase of land production rate and labor productivity, and technical learning and use is the important factor influencing the land production rate and labor productivity. The development and application of technology is the key to the continuous improvement of agricultural modernization [1]. However, the current literature on the impact of labor transfer on forestry technology selection has not been refined to *Camellia oleifera* varieties [2-4]. Therefore, this paper from the quantitative point of view, through the Hunan, Jiangxi, Fujian provinces of *Camellia oleifera* cultivation of farmers to conduct interviews and interviews with the data obtained by the analysis, hope to answer two questions: Forestry and Agriculture's technical needs are met? Can Forestry and Agriculture acquire technical channels to meet the production of *Camellia oleifera*?

Materials and Methods

Variable Selection. Here, the meaning of the indicator variables in the model of the channel selection model for the cultivation of *Camellia oleifera* farmers and the cultivation of *Camellia oleifera* farmers is given in Table 1 below.

Table 1 Interpretation of index

Index variable	Indicator meaning	Variable value and description
TD	Introduction of High Yield of <i>Camellia oleifera</i>	Dummy variables: Group 1 for chemical technology; Group 2 for physical technology
TC	The introduction of new technology channels (dummy variables)	Government promotion department = 1; other channels = 0
I _K	Household income of <i>Camellia oleifera</i> growers (treated as dummy variables in actual analysis)	The variable is divided into 5 groups, 20,000 less for the first group; 20,000 to 40,000 for the second group; 40,000 to 60,000 for the first three groups; 60,000 to 80,000 for the fourth group; 80,000 or more for the first 5 groups, and set the corresponding dummy variable
E _K	The degree of education of the <i>Camellia oleifera</i> growers (treated as dummy variables in the actual analysis)	The variable is divided into five groups, the first group for the first group; primary school for the second group; junior high school for the third group; high school for the fourth group; college and above for the fifth group, and set the corresponding dummy variable
A _K	The average age of households in <i>Camellia oleifera</i> growers	Quantitative data
B _K	The time of planting <i>Camellia oleifera</i> (the actual analysis is processed into a dummy variable)	The variable is divided into three groups, one to three years for the first group; 3 to 6 years for the second group; 6 years and above for the third group, and set the corresponding dummy variable
S _K	<i>Camellia oleifera</i> cultivation scale	Quantitative data
L _K	The Transfer of Forestry Labor Force in <i>Camellia oleifera</i> (The actual analysis is processed into a dummy variable)	No transfer to group 1; a small amount of transfer for the second group; most of the transfer to the third group, and set the corresponding dummy variable
K _K	The amount of fixed assets invested in <i>Camellia oleifera</i>	Quantitative data
ET _K	Government technical services provided by the agricultural extension sector (dummy variables)	Provide = 1; do not provide = 0
AS _K	Other channels of technical services (dummy variables)	Provide = 1; do not provide = 0
D _K	Other Differences in Planting Environment from <i>Camellia oleifera</i> (dummy variables)	Set dummy variables according to different provinces
X	The actual demand for new forestry technology	Need = 1; do not need = 0

Note: TD *Camellia oleifera* in the high-tech chemical technology for pesticide fertilizer and other technologies, physical technology for agricultural machinery and other related technologies; planting *Camellia oleifera* set the basis of time variables, according to the growth period of *Camellia oleifera* 1 to 3 years without fruiting, 3 to 6 early fruiting, more than 6 years began to enter the rich period.

Model Building. The technical selection behavior of the *Camellia oleifera* plantation farmers is based on the motive of the promotion of the outside *Camellia oleifera* cultivation technology and the motive of the farmers 'domestic demand for the cultivation of *Camellia oleifera* [5].

Assuming the cultivation of *Camellia oleifera* and farmers is the rational economic man in the economic theory, the farmers are pursuing the maximization of the profit of the *Camellia oleifera* plantation. The judgment of the farmer's choice of forestry technology should be carried out through the cost of the technology investment and the expected profit the conclusion of the comparison. The forestry technology will be used by farmers when the capital invested in the introduction of forestry technology is greater than the expected profit from the introduction of forestry technology, and vice versa.

Which means that the first *Camellia oleifera* growers in the use of new technology can be obtained before the *Camellia oleifera* planting income, can be understood to maintain the original production conditions can be expected to obtain the benefits of *Camellia oleifera* cultivation, in other words, that is necessary for the renewal of technology investment the opportunity cost. Indicating that the first *Camellia oleifera* growers in the adoption of new technologies can be obtained after the *Camellia oleifera* planted expected benefits. The selection of farmer's forestry technology is a typical classification problem. For the analysis of this classification problem, the most commonly used method is the logistic regression analysis in the generalized regression model. This is an effective way to deal with the multiple choices problem. The data are to be measured by this method.

And farmer forestry technology selection and analysis of the same problem, the farmers for the forestry of new technology channel selection problem is a typical classification problem, where the logistic regression analysis is still used to calculate the data.

Survey Method. In order to analyze the technical selection of *Camellia oleifera* growers, this paper interviewed some farmers in Hunan, Jiangxi and Fujian provinces as the research object, and carried out field investigation and interview on some farmers in *Camellia oleifera* in three provinces. The data were used as the data of the effective source. During the research period, the research group fully considered the geographical distribution of *Camellia oleifera* and the conditions of local natural resources, but also fully considered the local economic development level and the family economic level of *Camellia oleifera* growers, and so on, so as to make the sample complete and effective. A total of 270 questionnaires were collected and 247 valid questionnaires were retrieved. The questionnaire was effective at 91.49%. The actual data of 404 *Camellia oleifera* land of 247 growers in 2014 and 2015 were obtained. The related indexes and explanations were as described above.

Analytical Methods. Based on the survey data, this paper analyzes the forestry technology selection of peanut farmers in Hunan, Jiangxi and Fujian provinces. The data processing analysis involved is done through SPSS software.

Results and Analysis

Analysis on the Acquisition of Forestry Technology for Farmers of *Camellia oleifera*. The data of the survey interview were quantified and virtualized, and the SPSS software was used to select the maximum likelihood estimation method to analyze the logistic regression of the forestry technology acquisition channel of *Camellia oleifera* growers.

First, there is a negative relationship between the degree of forestry labor transfer and the services provided by the *Camellia oleifera* growers to choose the government agricultural extension departments. Because of the relatively high educational level of the labor force, it is easy to obtain high-yield technology through network resources such as multimedia, and relatively less through the government's agricultural extension department to obtain new forestry technical service, but relatively Chemical technology (fertilization technology), the physical technology (agricultural machinery use technology) is not significant enough.

Second, there is a negative relationship between the scale of *Camellia oleifera* cultivation and the services provided by the growers to choose the government agricultural extension departments. In general, large-scale farmers engaged in the cultivation of *Camellia oleifera* and the production income as the main income, this type of planters for *Camellia oleifera* cultivation put more energy, they through a variety of channels to obtain new cultivation techniques, but for the government has

provided little interest in the basic and universal *Camellia oleifera* cultivation technology promotion service.

Thirdly, there is a negative relationship between the educational level of the *Camellia oleifera* growers, the average age of the families, and the average household income between the services provided by the *Camellia oleifera* growers and the government agricultural extension departments. Generally speaking, with a higher level of education, high income *Camellia oleifera* growers have a wider range of *Camellia oleifera* cultivation techniques to obtain channels, such as network independent inquiries, expert telephone consultation, participation in social enterprise services, and the average age of farmers, lack of labor and learning ability cannot effectively learn and apply high-yield technology. As a result, the possibility of forestry technology renewal through the provision of forest technology extension services by the government is relatively small.

Conclusion and Suggestions

From the point of view of the selective migration of labor force, the author uses the data of farmers in Hunan, Jiangxi and Fujian, China, the demand for oil cultivation, the influence of labor transfer on the production of *Camellia oleifera* and the technology of cultivated peanut channel selection to start the calculation and analysis, found that the transfer of labor for the *Camellia oleifera* cultivation of technical selection and adoption, and channel selection have a more significant impact, a higher degree of labor transfer is not conducive to the use of new technologies, the existence of labor loss of growers to learn and the application of new *Camellia oleifera* cultivation technology is relatively low interest and motivation are more willing to engage in rigid production of *Camellia oleifera* and their activities; higher degree of labor transfer growers is more inclined to through the government agricultural technology sector to provide technical services outside the channel to obtain new technology, and the introduction of chemical technology than the introduction of physical technology is more significant.

According to the conclusion of this paper, the author believes that in the current situation of the loss of forestry labor force, the current development of *Camellia oleifera* industry needs to improve the importance of *Camellia oleifera* growers, strengthen communication with growers, Technical subsidies and training to improve the overall quality of *Camellia oleifera* growers level; and agricultural improved varieties of subsidies, agricultural subsidies compared to the relative lack of forestry subsidies, forestry subsidies should be through various forms, to guide the *Camellia oleifera* growers to increase the cultivation of *Camellia oleifera* Investment in fixed assets.

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