http://ansinet.com/itj

ITJ

ISSN 1812-5638

INFORMATION TECHNOLOGY JOURNAL

ANSInet
Asian Network for Scientific Information
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan

Information Technology Journal 12 (21): 6281-6284, 2013
ISSN 1812-5638 / DOI: 10.3923/itj.2013.6281.6284

Study of Satisfaction of Forestry Right Reform and the Will of Forestry Management

[1]Zhang Jianhua and [2]Nie Sen
[1]College of Soil and Water Conservation, Bei Jing Forestry University,
[2]Department of Economics and Management, Beijing Forestry University, 100083, Beijing, China

Abstract: Based on NingHua effective 116 household's questionnaire about forestry right reform, discussing the influencing factors of forestry management. And Logistic model was used to study the related factors of the specific influence willingness to change household participation in forest management. The results showed that the farmers would like to follow-up the proportion of forest management than is not willing to continue to the proportion of forest management. And the influence factors of farmers' subsequent forest management intention, family population, income proportion, expected income of forestry workers will increase, whether the allocation of forest land and farmers of the environmental protection consciousness of farmers subsequent forestation will have a significant impact.

Key words: Reform of collective forest, forest management, influencing factors, wishes

INTRODUCTION

The area of collective forest land is 167 million hm^2, accounting for 57.55% of the total forest area in China and larger than that of the cultivated land (120 million hm^2). The collective forest land is not only a kind of precious forest resources but also an essential production factor for farmers in forest areas. After the Decisions of the CPC Central Committee and the State Council on Accelerating the Development of Forestry issued in June 2003, the reform of collective forestry property right system was first carried out in Fujian, Jiangxi and Liaoning. The reform was centered on "clarifying the property ownership, reducing taxes and fees, allowing flexible management and standardizing the land transfer" (Jia, 2006).

Based on a field survey on 116 forest farmers involved in the reform of collective forest property right system in Ninghua County, Sanming City of Fujian Province, we had made a detailed analysis on the satisfaction of forest farmers on this reform and their willingness to further operate the forests. Besides, we had discussed some influence factors for their satisfaction and willingness, so as to consolidate the previous achievements of this reform, improve the farmers' willingness to operate the forests, protect the living environment for the people and provide basis and inspirations for our country to further carry out the reform in other areas.

An empirical analysis on the influence factors of farmers' willingness: Based on the survey on their willingness to further operate the forests, it was found that, among 116 interviewed families, 95 families (81.9%) were willing to further operate the forestry.The farmers are the implementers of the reform and also the major operated of forests after the reform. To ensure an effective work following the reform project, we must improve the enthusiasm of the forest farmers. Only through the reforms that meet the farmers' willingness can we activate their enthusiasm to operate the forests. The governments should not neglect the wills of these 18.1% farmers. They should find out the reasons behind so as to better activate their enthusiasm.

Indicators choosing: 15 indicators have been determined to be the factors, which are shown in Table 1.

Model building: Based on the preliminary statistical analysis on the 115 families in this field survey, we build a Logistic regression model for the verification of factors influencing the farmers' willingness to operate the forests. Besides, the authors will further evaluate the level of significance of each factor. Because the variable Y has two values, with Yi = 1representing farmers willing to operate the forests and Yi = 0 representing those not willing to operate the forests, then the dichotomous Logistic regression model will be the most appropriate method for analysis.

The dichotomous Logistic regression model is as follows:

$$\ln\left(\frac{Pi}{1-Pi}\right) = Xi'\beta = \beta_0 + \beta_1 X1 + \ldots + \beta i Xi$$

Corresponding Author: Nie Sen, Department of Economics and Management, Beijing Forestry University, 100083, Beijing, China

Table 1: Model variable and statistics analysis

Model variable	Unit or value	Variable Characteristic	Total No. (N = 116)	Willing to manage forestry (N1 = 95)	Not Willing to manage forestry (N2 = 21)
Factors of farmers					
X1: Average number in one family	Unit	Constant	5.090	5.040	5.140
X2: Age of Correspondents	year	Constant	48.320	51.000	45.600
X3: Labor accounts more than half of numbers	Y = 1, N = 0	Binary	70 (60.3%)	54 (56.8%)	16 (76.2%)
X4: Village leader	Y = 1, N = 0	Binary	44.000	39.000	5.000
X5: Average area per people	Hm^2/P	Constant	10.640	2.180	19.100
X6: Average education	Year	Constant	2.840	2.540	3.140
Farmers living factors					
X7: average wages per family	10000 yuan/year	Constant	9.180	7.220	11.260
X8: whether working for others is main source of wages	Y = 1, N = 0	Binary	53 (45.7%)	38 (40.0%)	15 (71.4%)
X9;expecting forestry wages increases	Y = 1, N = 0	Binary	88 (75.9%)	82 (86.3%)	6 (28.6%)
Factors related to forestry rules					
X10: whether have forest right certification	Y = 1, N = 0	Binary	91 (82.8%)	84 (88.4%)	7 (57.1%)
X11: whether allocation of land reasonable	Y = 1, N = 0	Binary	75 (64.7%)	69 (72.6%)	6 (28.6%)
X12: whether joining forestry cooperation department	Y = 1, N = 0	Binary	7 (7.8%)	5 (5.3%)	2 (9.5%)
X13 : whether knowing about forestry reform contents	Y = 1, N = 0	Binary	83 (71.6%)	74 (77.9%)	9 (42.9%)
X14: whether having forestry loan	Y = 1, N = 0	Binary	7 (7.8%)	5 (5.3%)	2 (9.5%)
Law consciousness					
X15: Whether knowing laws related to environment protection	Y = 1, N = 0	Binary	106 (91.4%)	91 (95.8%)	15 (71.4%)

Wherein, Pi is the probability of the variable Yi = 1, that is to say, the probability when farms willing to operate the forests, the variable Xi stands for various factors influencing the farmers' willingness to operate the forests; β_0 and β_1 stand for the coefficients of respective variables obtained through maximum likelihood estimation.

Model results analysis: We have made an estimation for the model based on the data of 116 samples and the results are listed in Table 2. Cox and Snell $R^2$and Nagelkerke R^2 have tested the goodness-of-fit of the regression equation; NagelkerkeR^2 is a correction of Cox and SnellR^2, reflecting the degree of variation explanation of equation vs. explained variables. Generally, its value is set within the range of 0~1. When its value is closer to 1, the goodness-of-fit of the equation is better. In this article, the value of Nagelkerke R2 is 0.759, which means that this regression equation has a relevant good goodness-of-fit.

Seeing from the estimation results of various explained variables, there are 5 variables whose estimation coefficient has 5% significance level. The concrete explanation for the estimation results are as followings:

- Farmers' own influence factors. The influence of "family member numbers" for the farmers' willingness to operate the forests is bellow the 5% significance level and the result is positive. It indicates that the more the family members, the stronger the farmers' willingness to operate the forests. Besides, seeing from the statistical results, such factors as education level and whether or not the village cadre have no significant influence on their willingness to operate the forests. Generally, the higher the education level, the stronger the ecological awareness and the stronger willingness for forest planning. The village cadres can actively support and understanding major national policies and are willing to plant forests (Wang, 2011). However, this situation does not appear in the results. In terms of age, regardless of whether they are cadres, there are people willing or not willing to plant forests. It can be seen from the above results that other farmers' own influence factors except for family member number have no significant influence on farmers' willingness in forest planning
- The livelihood factors. The significance level of the factors "expected more income from economic forest operating" and "income mainly from out-migration work" is bellow 1%. The two factors have a significant influence on the farmers' willingness to

Table 2: Model results

	Sig.	B	Exp (B)
X_1	0.089*	0.649	1.914
X_2	0.357	-0.049	0.952
X_3	0.364	-1.059	0.347
X_4	0.579	-0.649	0.523
X_5	0.585	0.049	1.050
X_6	0.598	-0.075	0.928
X_7	0.589	0.000	1.000
X_8	0.021**	-3.111	0.045
X_9	0.002**	4.523	92.140
X_{10}	0.215	1.425	4.156
X_{11}	0.004**	4.203	66.885
X_{12}	0.999	20.746	1.023e9
X_{13}	0.320	-1.154	0.315
X_{14}	0.088**	2.514	12.359
X_{15}	0.220	-3.342	0.415
COX and SNELL R2	0.464		
Nagelkerke R2	0.759		

*Represents5% level; **Represents 1% level

further plant forests. When other conditions are not changed, each yuan is increased for expected income from economic forest operation, the farmers' willingness to further plant forests will increased by 92.14 times. This result is in consistency with the expectation direction. For farmers willing to further plant forests, the most concern is how to increase their income from forest land by whatever methods. Besides, the significance level of "income mainly from out-migration work" is bellow 1% and the coefficient is negative. It indicated that the higher the income from out-migration work accounting for the total family incomes, the stronger willingness to plant forests and vise versa. These families have many elders. They have no other sources of finances. There is no family member or few family members for out-migration work

- Influence factors related to forest property right. The significance level that "whether the forest land allocation is rational" is bellow No. 1. The sig value is 0.004 and the coefficient is positive, which means this factor has a significant influence on farmers' willingness to plant forests. Researches show that, for farmers with fewer primary forest lands before the new round reform of collective forest property right system, the rationality of forest land allocation has been improved (Wang and Zhai, 2009), which is consistent with the survey results. 64.75% of interviewed families expressed satisfaction with the forest land allocation during this reform, which means that when the national policies can guarantee the interests of the civilians, the civilians will be more willing to support the national policies. According to the statistical results, when the farmers think that the allocation of forest land is rational, then the willingness to plant forests will be increased by 66.885 times compared with that when they think it is irrational. It can be explained in this way, if the farmers are satisfied with this reform or if they think the allocation of forest land is rational, then they will be more willing to support the national policies, including the forest planning plan highly advocated by our country.
- Legal awareness. Whether the farmers have a knowledge of the Environment Protection Law or the Forest Law is also an important factor influencing their willingness to plant forests. The significance level of this factor is bellow 1%. The willingness of farmers with a knowledge of these laws is 12.359 times higher than that of farmers within no knowledge of these laws. Most of farmers interviewed have a certain knowledge of the laws related to environment protection. At present, within global warming, our country has make great efforts in calling on people to protect our environment. Besides, the natural disasters are frequent in recent years. So, the Chinese people have recognized the important of tree and forest planting. Based on this, their willingness to plant forests is strong.

SUGGESTION

- Government shall provide more technical guidance on forestry cultivation and daily management. According to the survey, whether the income from forest operating will be increased is a major factor influencing farmer's willingness to further operate forests. The farmers lack of relevant technical guidance, especially for the daily management of the forests. Besides, they are in a great need of free guidance on the planting of new specifies. It requires the government to provide more technical training and market supports for farmers during forest planning. Although a large number of rural populations have migrated to cities and income from out-migration work is the main source for their total family incomes, for the 116 interviewed families, the forest income still accounts the 14.6% of their total family incomes. We shall guarantee the continuity and stability of forest income because it accounts for most part of the income sources
- During the allocation of forest lands, the government shall strive for an equal allocation of forests and mountains or equal allocation of shares and interests in case equal allocation of forests and mountains is not practicable. The government shall take equality as an important factor when designing the forest land allocation system. Zhang Jianlong, Deputy Director of the State Forestry Bureau of China has emphasized that, the new round reform of collective property right system shall first ensure that all farmers have the equal right to the contracted management of forest lands, … the forests and mountains shall be allocated equally to each family, or the shares of and interests from forest operation shall be equally allocated to each family (Kong and Li, 2009). Many interviewed farmers complained that the village cadres or the rich people in good relationship with village cadres owned more forest lands, while some villagers had few forest lands, some of which is too poor to plant the forests. The forest land is a proof for family's resource property right. Only through rational allocation of forest land, the civilians will be satisfied with the reform and their enthusiasm of forest

planting will be increased. Therefore, during the policy implementation, the government shall not neglect the will of 35.3% farmers (thinking that the forest land allocation is irrational). Instead, the government shall design a more rational and perfect application policy to meet the farmers' requirements. For forest lands that have been allocated to farmers, the government shall formulate the supporting policies. For forest lands that have been expired and need to be allocated again, the government shall guarantee the equality of allocation

- Government shall put forward policies for the forest land transfer, the cooperative land management and the capitalized land management so as to introduce farmers to forest planting again. At present, most rural populations have left their hometowns to work in cities, so most of forest assets have been out of use. If the government can issue relevant policies for the scaled forest land operation and guarantee the continuous interests of forest assets, then most of migrant workers will return to their hometown and work there. At the same time, the government shall also expand the employment channels and increase the job types for farmers in the rural area. The elders and children are unable to plant their forest lands, so the forest land assets are mostly left for no use or transferred to others. Therefore, the government shall create more job opportunities for rural populations, provide them with chances for better development and encourage them to return to their hometown (Chen and Wu, 2010)

REFFERENCE

Chen, X.L. and H.L. Wu, 2010. Performance evaluation of collective forestry reform. J. Econ. Res. J., 34: 147-155.

Jia, Z.B., 2006. Collective forestry reform is a huge liberate to rural product powers. J. China For., 3: 5-6.

Kong, F.B. and D. Li, 2009. Collective forestry reform model and performance analysis in new period. J. Agric. Technol. Econ., 6: 96-104.

Wang, C.H.A., 2011. Study on farmers pre-satisfaction and follow-up willingness of returning farmland in the giant panda nature reserve. J. Resour. Sci., 32: 2030-2037.

Wang, H.Y. and Y.L. Zhai, 2009. Influence of property right on farmers forestry investment. J. Agric. Technol. Econ., 2: 62-68.