# The Willingness of Ecological Migrants to Participate in the Ecological Protection of National Parks from the Perspective of Local Attachment: Evidence from Shennongjia

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**Abstract:** Effective ecological protection of national park needs the participation of multiple subjects. As the core stakeholders of National Park ecological protection, ecological migrants' participation is of great significance. Based on the perspective of local attachment, this paper constructs a measurement index of local attachment from theree dimensions: local identity, social contact and local dependence. Taking ecological migrants as the object, this paper explores the impact of local attachment on the willingness of ecologWical migrants to participate in the ecological protection of National Park, and establishes a three-stage stepwise regression model and a mediating effect model to explore the mediating effect of social trust. The results show that: the overall level of local attachment of ecological migrants is high; by further improving the level of local attachment of ecological migrants of National Park community, their willingness to participate in ecological protection can be enhanced; social trust plays an important intermediary role in the relationship between local attachment and ecological migrants' willingness to participate in ecological protection. Then, this paper puts forward corresponding suggestions.

## 1. Introduction

The overall plan for the establishment of national park system clearly states that ecological protection is the primary goal of China's national parks' construction. The report on the construction and management of nature reserves in 2016, the overall plan for the establishment of national park system in 2017 and the guiding opinions on the establishment of a national park based nature reserve system in 2019 all indicate the importance of ecological protection of national parks and put forward strict requirements for its protection, hoping to reduce environmental damage caused by economic development. Therefore,the ecological protection has undoubtedly become a key issue to the study of national parks.

At present, studies on ecological protection of national parks mainly focus on the theoretical level, involving the establishment of ecological compensation policies and mechanisms, the green development path, and the coordinated development of ecological protection and economic society. In terms of the establishment of ecological compensation policies, scholars have pointed out its great importance, proposed that the system can internalize the externality of ecosystem services provided by National Parks[1], and it can solve the problem of sustainable development of national parks and resolve the imbalance between ecological interests and economic interests[2]. In terms of the future development of ecological protection, some scholars believed that we should adhere to the combination of ecological protection and the improvement of people's living standards[3]. Some argued the development of national parks in the future should establish vertical management system, franchise mechanism and multi-channel diversified fund guarantee mechanism[4]. In terms of the problem of coordinated development of ecological protection and economic society in national parks, most scholars researched from the perspective of tourism development and stated that

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tourism development should be studied under the framework of ecosystem services[5]. Some have pointed out that while national parks bring economic benefits, there are many problems shown in practice due to the differences in the concept comprehended of human land coordination[6].

In summary, previous studies are mostly explored from the macro perspective, but less focused on the main body of ecological protection from the micro perspective, which are the participants. For the effective implementation of the ecological protection of national parks, the relevant participants are essential and they are the direct objects to ecological protection. Among them, ecological migrants is one special group, for they are the core stakeholders of National Park ecological protection. Ecological migrants in national parks are those who are migrated in order to scientifically and reasonably prevent the ecological deterioration trend, thus to effectively protect the environment of the ecological vulnerable areas in the National Park and achieve the best protection of core resources[7]. However, ecological migrants' interests are partly infringed during the process, leaving away from their born land and their means of production. It is necessary to pay attention to this group's understanding of the significance of ecological protection and the government's way of settlement after relocation. How to mobilize this group to participate in ecological protection is a measure to achieve both ends, not only it is of great significance on the resettlement of ecological migrants and enhance their profound understanding of ecological protection but also it helps to absorb a new subject to national parks' ecological protection.

As the rural China revealed, the foundation of Chinese society is from the soil. Influenced by thousands of years of Confucianism and traditional culture, the Chinese people have a strong local complex emotions since ancient times, emphasizing "moving back to their hometown" and "returning to their roots". In such a special social psychology, human land relationship has become an important factor in the environmental governance system, such as "local attachment". Previously, "local attachment" was mostly used on community residents' participation in urban governance[8], tourists' satisfaction, loyalty[9], pro-environmental behavior[10], etc., but not for the application of National Park and the special group of ecological migrants.

On this basis, this paper adopts the perspective of local attachment, taking the ecological migrants as the research subject, and investigates the level of ecological migrants' local attachment and its impact on their willingness to participate in the ecological protection of national parks, so as to not only put forward corresponding measures to help construct the ecological protection in national parks and contribute to the construction of ecological civilization in China, but also broaden the scope of the application scenario of local attachment theory and provide a new research perspective for the ecological protection and construction of national parks.

## 2. Data and Methods

### 2.1 Research Hypothesis

#### 2.1.1 Dimension Division of Local Attachment

There are different views on the dimension division of local attachment. William et al. believed that local dependence and local identity are two important dimensions of local attachment[11], while Scannell et al. proposed three components, which are "Person, Place and Psychological Process"[12]. Then, Chen et al. put forward a four-dimensional approach, namely, "place identity, emotional attachment, social contact, and place dependence"[13]. It can be seen that "local identity" and "local dependence" are both widely recognized by scholars, while the emotional attachment and local identity have cross content and emotional attachment will eventually be reflected in identity. Therefore, drawing on the previous studies, this paper investigates the level of local attachment of ecological migrants on three dimensions, "local identity, social contact and local dependence", among which, local identity refers to the sense of identity of ecological migrants to the National Park community; social contact refers to the contact of ecological migrants to the neighborhood, community and government; local dependence shows the performance of individuals' sense of dependence for the place on meeting their functional needs .

### 2.1.2 The Impact of Local Attachment on the Willingness of Ecological Migrants' Participation

In view of the impact of local attachment on residents' participation in ecological protection, many scholars have shown that local attachment can improve residents' willingness and behavior of ecological protection. However, most of the known studies focused on tourists' recreational behavior or urban residents, and paid less attention to the utility relationship of place attachment applied to ecological migration. This paper argues that local attachment affects ecological migrants' participation in National Park ecological protection from two aspects: on the one hand, the attitude of ecological migrants to the National Park community environment is affected. When ecological migrants have local attachment to the place, they are more willing to protect it. On the other hand, local attachment will make ecological migrants less willing to sacrifice local ecological environment for self-interest. Therefore, hypothesis H1 is proposed.

Hypothesis H1: local attachment has a positive impact on ecological migrants' willingness to participate in National Park ecological protection.

### 2.1.3 Mediating Effect of Social Trust

Local attachment not only directly affects residents' participation in ecological protection, but also indirectly affects residents' willingness to participate through social trust. For example, neighbors in the same community tend to have close and long-term contact with each other, and the level of mutual trust is high. They are often willing to help each other out and cooperation is easily built. Therefore, with the improvement of trust level, the possibility of cooperation and participation among individuals, neighbors and governments will also increase. Therefore, this paper speculates that local attachment will promote ecological migrants' higher social trust and further enhance their willingness to participate in ecological protection, thus puts forward hypothesis H2.

Hypothesis H2: social trust plays an important mediating role in the impact of local attachment on ecological migrants' willingness to participate in ecological protection.

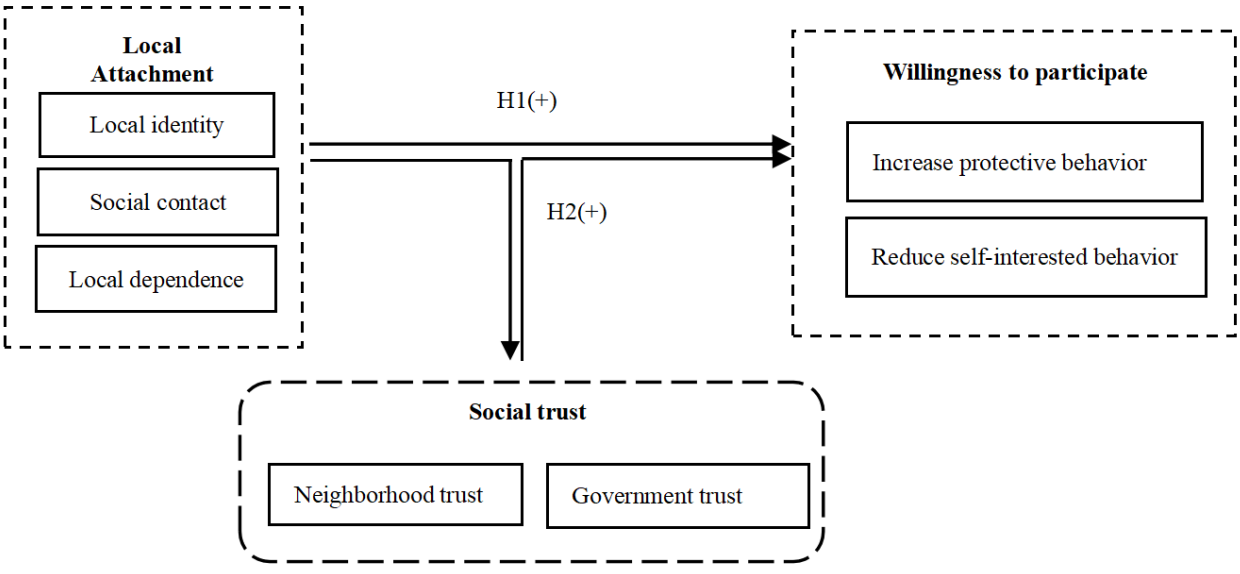


Fig.1 The Theoretical Model.

## 2.2 Data Sources and Variable Selection

### 2.2.1 Data Sources

The survey was conducted in Shennongjia National Park in Hubei Province. Questionnaire and interview were used, and analysis software was used for data integration. A total of 268 questionnaires were distributed, and 264 were effective, with an effective rate of 98.5%.

### 2.2.2 Variable Selection and Description

Dependent variable: willingness of ecological migrants to participate in National Park ecological protection. Specifically, the questionnaire is characterized by “whether you are willing to participate in the ecological protection of national parks (such as ecological management and public protection welfare post)” and “I will not damage the environment for realizing my own interests (such as polluting the river for convenience)”. In general, the willingness of ecological migrants to participate in the ecological protection of national parks is high, with an average of 4.18.

Explanatory variables: local identity, social contact and local dependence. On the whole, the degree of local attachment of ecological migrants is high, with an average of 4.02. Specifically, the average values of local identity, social contact and local dependence were 4.23, 4.04 and 3.76 respectively (Table 1). It can be seen that the degree of emotional attachment of ecological immigrants to the National Park community is higher than than that of functional attachment.

Intermediary variable: social trust. Generally speaking, social trust can be divided into two types: interpersonal trust and institutional trust. Interpersonal trust is the emotion gradually generated in people's communication. Institutional trust is the trust formed on the basis of normative system, which shows people's confidence in their social or institutional environment. For example, the law is designed on the basis of trust, and at the same time, it must rely on people’s trust to make its role play[14]. Similarly, when the ecological migrants trust the government, one of the representatives of the system, their enthusiasm to participate in the National Park ecological protection and governance is greatly improved. Therefore, this paper uses interpersonal trust and institutional trust to characterize social trust. Interpersonal trust chooses the trust of local neighbors, and institutional trust chooses the trust of the local government.

Other control variables: gender, age, years of migration and other individual characteristics.

Table 1 Index Results Of Each Dimension of Local Attachment and Social Trust.

| Variable | Dimension | Mean | Index | Mean |
|---|---|---|---|---|
| Local Attachment(4.02) | Local Identity | 4.23 | I accept the traditional culture and customs of this area. | 4.24 |
| | | | I have a strong sense of identity with the current community. | 4.00 |
| | | | The community has become a part of my life. | 4.30 |
| | | | When I go out, I miss this place a lot. | 4.39 |
| | Social Contact | 4.04 | I get on well with the people here. | 4.36 |
| | | | I like to participate in group activities in the community. | 3.73 |
| | Local Dependence | 3.76 | I like it better than other places. | 3.82 |
| | | | I can't feel the joy of living here anywhere else. | 3.82 |
| | | | I feel like I can't live without it. | 4.00 |
| | | | No other place can provide me such living conditions. | 3.42 |
| Social Trust(4.11) | Interpersonal trust | 4.30 | I have a lot of trust in the local people. | 4.30 |
| | Institutional trust | 3.91 | I have a lot of trust in the local government. | 3.91 |

## 3. Results and Analysis

### 3.1 Reliability Analysis of the Scale

Reliability analysis represents the consistency and stability of the scale. When Cronbach reliability coefficient (α) is between 0 and 1, the closer to 1, the higher the internal consistency. 0.70 was the lowest limit, and the α value of the total scale should be higher than 0.80. This study includes three subscales. The results show that the α of the three subscales, namely local attachment, social trust and ecological protection willingness are 0.815~0.916, all reaching the standard of 0.70. The α of the total scale is 0.939 > 0.80, indicating that both the subscales and the scales have high internal consistency reliability.

### 3.2 Descriptive Statistical Analysis

In the effective samples, male residents account for 63.6% and are mainly over 60 years old, accounting for 40.5%. On the educational level, the proportion of primary school and below is the

largest, accounting for 68.1%, while the undergraduate is the smallest, which is 1.5%. In terms of residence time, sample data shows a trend:high in the poles and low in the middle. Those who lived for 3 years or less and more than 15 years account for 36.4% and 27.3% respectively. In terms of family monthly income, 81.9% of the respondents are no more than 5000 yuan, while only 0.8% has a monthly income of more than 10000 yuan. In terms of job distribution, 69.7% of the respondents are farmers, 18.2% are self-employed, and other occupations account for 12.1%.

Table 2 Sample Demographic Data.

| Variable | Classification | Frequency | Proportion/% |
|---|---|---|---|
| Gender | Male | 168 | 63.6 |
| | Female | 96 | 36.4 |
| Age | Under 25 | 11 | 4.2 |
| | 25-45 years old | 91 | 34.5 |
| | 46-60 years old | 54 | 20.5 |
| | Over 60 | 107 | 40.5 |
| Educational level | Primary school and below | 180 | 68.1 |
| | Junior middle school | 42 | 15.9 |
| | Senior High School | 38 | 14.4 |
| | Undergraduate | 4 | 1.5 |
| Family population | 3 or less | 88 | 33.3 |
| | 4 people | 104 | 39.4 |
| | 5 people | 40 | 15.2 |
| | 6 or more | 32 | 12.1 |
| Residence time | Less than 3 years | 96 | 36.4 |
| | 4-9 years | 56 | 21.2 |
| | 10-15 years | 40 | 15.9 |
| | More than 15 years | 72 | 27.3 |
| Monthly household income | Less than 2000 yuan | 110 | 41.7 |
| | 2001-5000 yuan | 106 | 40.2 |
| | 5001-10000 yuan | 48 | 18.2 |
| | 10001-15000 yuan | 2 | 0.8 |
| | More than 15000 yuan | 0 | 0 |
| Occupation | Farmer | 184 | 69.7 |
| | Civil servants and personnel of enterprises and institutions | 8 | 3.0 |
| | Tourist attraction staff | 16 | 6.1 |
| | Self-employed | 48 | 18.2 |
| | Others | 8 | 3.0 |

### 3.2.1 Analysis of Total Sample Results

Combined with the mediating effect model, this paper conducted the linear regression (local attachment is independent variable, willingness of ecological protection is dependent variable), the output result was shown in Table 3. P=0.000, which shows that local attachment has a significant impact on ecological migrants' willingness of ecological protection, and the standardized coefficient c=0.748, hypothesis 1 is valid.

Table 3 Regression Results Of Independent Variable and Dependent Variable.

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Quadratic sum | df | Mean square | F | Sig. |
| 1 | Regression | 75.668 | 1 | 75.668 | 332.603 | .000[b] |
| | Residual | 59.605 | 262 | .228 | | |
| | Total | 135.273 | 263 | | | |
| a. Dependent variable: willingness of ecological protection | | | | | | |
| b. Predictors:(constant), local attachment | | | | | | |
| Coefficient[a] | | | | | | |
| Model | | Nonstandard coefficient | | Standard coefficient | t | Sig. |
| | | B | Standard error | Beta | | |
| 1 | (Constant) | -.521 | .260 | | -2.007 | .046 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Local attachment | 1.171 | .064 | .748 | 18.237 | .000 |
| a. Dependent variable: willingness of ecological protection | | | | | | |

Repeat the linear regression process, and add the intermediary variable social trust for linear fitting (Table 4), the results show that local attachment as an independent variable has a significant impact on social trust (P = 0.000), the standardization coefficient a = 0.781, indicating that the higher the degree of local attachment, the stronger the sense of social trust.

Table 4 Regression Results Of Independent Variable and Intermediary Variable.

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Quadratic sum | df | Mean square | F | Sig. |
| 1 | Regression | 48.223 | 1 | 48.223 | 410.111 | .000[b] |
| | Residual | 30.807 | 262 | .118 | | |
| | Total | 79.030 | 263 | | | |
| a. Dependent variable: social trust | | | | | | |
| b. Predictors:(constant),local attachment | | | | | | |
| Coefficient[a] | | | | | | |
| Model | | Nonstandard coefficient | | Standard coefficient | t | Sig. |
| | | B | Standard error | Beta | | |
| 1 | (Constant) | .352 | .187 | | 1.886 | .060 |
| | Local attachment | .935 | .046 | .781 | 20.251 | .000 |
| a. Dependent variable: social trust | | | | | | |

Repeat the above linear regression process again, after adding the intermediary variable of social trust, the influence of place attachment is still significant (P = 0.000); the standardized coefficient b = 0.588, P = 0.000, the coefficient is significant; the standardized coefficient c′ = 0.312, P = 0.000 < 0.05, the coefficient is significant. However, compared with the X-Y regression process, the impact of local attachment on the willingness of ecological protection is weakened (the coefficient changes from 0.748 to 0.312), which reveals the mediating effect of social trust. In addition, based on the results of Sobel-Goodman mediation test, the contribution rate of mediating effect to the total effect is M=a*b/c=0.781*0.558/0.748=58.3%. The mediating role of social trust is further confirmed.

Table 5 the Regression Results after Adding Intermediary Variable.

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Quadratic sum | df | Mean square | F | Sig. |
| 1 | Regression | 92.104 | 2 | 46.052 | 278.437 | .000[b] |
| | Residual | 43.168 | 261 | .165 | | |
| | Total | 135.273 | 263 | | | |
| a. Dependent variable: willingness of ecological protection | | | | | | |
| b. Predictors: (constant), social trust, local attachment | | | | | | |
| Coefficient[a] | | | | | | |
| Model | | Nonstandard coefficient | | Standard coefficient | t | Sig. |
| | | B | Standard error | Beta | | |
| 1 | (Constant) | -.778 | .223 | | -3.492 | .001 |
| | Local attachment | .488 | .088 | .312 | 5.567 | .000 |
| | Social trust | .730 | .073 | .558 | 9.969 | .000 |
| a. Dependent variable: willingness of ecological protection | | | | | | |

## 4. Conclusions

The results showed: First, on the whole, the level of local attachment of ecological migrants is relatively high, and local identity is the highest. This shows that the government's ecological resettlement work is accomplished well, so residents have a certain local attachment, but the government still needs to promote their local dependence. Second, local attachment has a significant impact on ecological migrants' willingness to ecological protection. By improving the local attachment level of ecological migrants, their willingness to participate in protection of

national parks can be improved. Third, social trust plays a mediating role in the impact of local attachment on ecological migrants' willingness to ecological protection, which means local attachment not only directly affects their willingness to participate, but also indirectly affects their willingness through social trust.

The research on the emotional relationship between ecological migrants and national parks is conducive to better understand the influencing factors and mechanism of ecological migrants' attitude and behavior to participate in public ecological protection. Therefore, based on research results, the following suggestions are proposed. First, on the emotional aspect, establish the National Park ecological protection appeal cohesion mechanism to strengthen the local identity. On the one hand, increase the publicity of the concept and importance of National Park ecological protection through advertising and other ways, to shorten their psychological distance from the National Park community. On the other hand, strengthen the participation role of ecological migrants in the ecological protection, and raise their sense of “co-construction, co-governance and sharing” in the ecological protection of National Park, which makes up the internal mechanism of their protection willingness.Second, on the material aspect, improve the community living environment and public service conditions to raise the level of local dependence. On the one hand, strengthen the infrastructure construction of National Park community and attach importance to the life satisfaction of ecological migrants, helping them achieve the comfortable and convenient life in the community. On the other hand, perfect the treatment mechanism of ecological migrants protection work, such as providing certain remuneration for participating in ecological governance, or relevant welfare treatment for ecological managers and so on, to further mobilize their participation willingness by external mechanisms.Third, on the level of social trust, strengthen the interaction and emotional integration among ecological migrants, local residents and the government. For example, organize more collective activities within the community, thus to strengthen the contact among residents. Government officials should also pay regular visits to ecological migrants, to continuously improve the level of interpersonal trust and institutional trust. In addition, the response system of residents' demands should also be built to ensure that residents have smooth channels of opinion expression, thus to enhance their sense of responsibility for the construction of ecological civilization in national parks.

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