A Study of Household's Environmental Cognitive Behavior and Influencing Factors on the Construction of Beautiful Countryside in Zhejiang Province

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Abstract. Based on 329 household survey questionnaire data in Zhejiang, China, we discussed farmer's environmental cognitive behavior on the beautiful countryside construction and its influencing factors, using linear regression, variance analysis and correlation analysis. The results show that fewer (20.30%) respondent farmers know this program; there are positive correlations between farmer cognitive on the beautiful countryside construction and their income. At present, rural households’ environmental awareness is low, but 40% of the respondents believe that the environment has been improved in recent years, they are beginning to realize the importance of the rural environment. Farmer cognition of the beautiful countryside construction has obvious spatial differences between different regions in Zhejiang province. As a whole, Taizhou (76.8%) households’ environmental cognition rate and Quzhou (76.3%) was roughly at the same level, Wenzhou (64.9%) is lower compared to them.

Introduction

In 2013, the central government put forward the goal of building the "beautiful countryside", to further strengthen the rural ecological construction, environmental protection and comprehensive improvement work. As a new carrier and new project to promote the construction of new socialist countryside and the construction of ecological civilization, it is not only an important practice form of ecological civilization and "beautiful China" in the rural areas of China, but also an active exploration of new socialist countryside construction, which has important practical significance.

Since first proposed building 'beautiful countryside' in 2008, the studies were mainly focused on the concept and connotation, focused on the goal, the importance and the difficulty of building beautiful countryside, and focused on the construction mode in different areas. Shu Genchuan (2010) considered the beautiful countryside construction is a combination of the new rural construction and cultural creativity; Wang Xufeng (2013), Liu Lanfang (2013) disclose the ecology connotation it contains such as improving the quality of famers’ ecological culture and so on; Wang Weixing (2014) put forward 5 problems in construction, for example the relationship between government-led and farmer subject; Sun Xiaojie (2015) studied the rural living environment under the perspective of the beautiful countryside construction.

Households are not only the main producers of rural environmental problems, but also the participants and beneficiaries of rural environmental governance. To build "beautiful countryside", to reduce environmental pollution in rural areas, the key is to improve the environmental awareness level of Households. Cognition and attitude of the actors will act directly on the motivation of the actors, which in turn will affect the behavior of the process and the effect of actors. Therefore, the beautiful countryside construction affect households' environmental cognition, and further affect households’ behavioral intentions of agricultural production mode, and ultimately affect whether households use environmentally friendly agricultural production behavior or not.
Research Area and Data Sources

This study is mainly based on the questionnaire survey data in Taizhou, Quzhou and Wenzhou in Zhejiang province. Zhejiang province is a coastal province in eastern China, an area of more than 100 thousand square kilometers, a population of 55 million 80 thousand, Hangzhou is the provincial capital. Jurisdiction over the province: 11 prefecture level cities; 32 municipal districts, 22 county-level cities, 35 counties, 1 autonomous county. Administrative Region under the jurisdiction of Hangzhou, Ningbo two vice provincial cities, Wenzhou, Shaoxing, Huzhou, Jiaxing, Jinhua, Quzhou, Lishui and Taizhou, Zhoushan nine prefecture level city. Quzhou city is located in the west of Zhejiang province, Taizhou is located in the east and Wenzhou is located in the southeast.

In this study, we defined a household as a basic family unit in which two or more generations live together to share opinions, and this survey was conducted from July to August 2015. We used simple random sampling to select the households, and included a total number of 420 householders in the final survey, with an effective response rate of 78.3%.

Questionnaire is divided into three parts, the first part of the individual characteristics of households and families; the second part is the environmental awareness of households; the third part includes some comments and recommendations on environmental issues. From the view point of farmers' cognition and behavior theory, the major factors affecting households' environmental awareness include personal characteristics, environmental characteristics and policy constraints. In order to elucidate the factors impact on households’ environmental cognition more clearly, SPSS19.0 software was used.

Results and Analysis

The Basic Characteristics of Households

In this survey, the farmers are mainly in middle age, among which 30 years of age accounted for 17.9%, 30-40 year old farmers accounted for 23.3%, 40-50 years of age 35.6%, 50 years of age and older 23%. On the view point of culture, farmers with primary and lower education accounted for 24.2%, junior high school education 20.6%, high school education or above reached 55.2%. The annual household's income of farmers interviewed was 4-7 million, about 60% of farmers has been living in local 10 for years or more.

Table 1. The basic characteristics of households.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Age</th>
<th>Education</th>
<th>Household's income</th>
<th>Residence time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>50.1%</td>
<td>17.9%</td>
<td>24.2%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>49.9%</td>
<td>30-40</td>
<td>23.3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40-50</td>
<td>35.6%</td>
<td>55.2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Above 50</td>
<td>23.0%</td>
<td>70,000-100,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100,000 or more</td>
</tr>
</tbody>
</table>
The Status of Farmers’ Cognition in Rural

![Graph](image)

Figure 1. The interaction of farmer household cognitive with age and sex.

The interaction between the environmental awareness rate and the age and sex of the farmers between groups was obtained by using the analysis of the variance (Fig. 1). The greater the marginal mean, the smaller the environmental awareness of the farmers. Because of the intersection of three lines, the interaction between age and sex has a significant influence on the environment cognition. For the male farmers, the younger the age, the higher cognition of the female farmer; the female farmers' cognition in the middle age group is lower than other groups. A reason for this phenomenon may be caused by, with economic and social developing, more and more attention on the environment was paid from the nation to every person, young people accept more environmental education and older farmers become insensitive to the external environment and become more difficult to accept new things compared young people, resulting in the younger the age, the higher cognition.

The Spatial Difference of Household's Environmental Cognition

Based on the cognitive rate of farmers, the spatial differences of household’s environmental cognition is analyzed, household’s environmental cognition rate in Taizhou, Quzhou, Wenzhou distribution is shown in Figure 2.

![Bar Graph](image)

Figure 2. Household’s environmental cognition rate.
Comparing the environmental awareness of the farmers in three regions, the environmental cognition rate of Wenzhou farmers was significantly lower than that of farmers in Taizhou and Quzhou. Further, at the significance level of 0.1, Wenzhou farmers’ cognition rate were significantly different from those of the other two, Taizhou farmers’ environmental cognition rate was the highest, followed by the Quzhou, Wenzhou farmers' environmental cognition rate was the lowest.

**Analysis on the Influencing Factors of Farmers' Environmental Cognition**

Household’s environmental awareness was analyzed by using regression analysis (Table 5). The results show that farmer sex, the beautiful countryside construction cognition has significant effect on household’s environmental awareness at a significant level of 0.05; the government also has significant influence at a significant level of 0.1. Overall, female farmers' environmental awareness level is higher than male farmers’, the higher the government emphasis, the higher the level of environmental awareness of farmers; participating in the construction of beautiful countryside will help households improve environmental cognition.

<table>
<thead>
<tr>
<th>Model</th>
<th>Non-standardized coefficients</th>
<th>t</th>
<th>Sig.</th>
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</thead>
<tbody>
<tr>
<td>c</td>
<td>1.257</td>
<td>6.026</td>
<td>.000</td>
</tr>
<tr>
<td>Sex</td>
<td>-.110</td>
<td>-2.186</td>
<td>.030</td>
</tr>
<tr>
<td>Age</td>
<td>.027</td>
<td>.972</td>
<td>.332</td>
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<tr>
<td>Education</td>
<td>.024</td>
<td>-1.068</td>
<td>.286</td>
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<tr>
<td>Household income</td>
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<td>1.462</td>
<td>.145</td>
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<tr>
<td>Residence time</td>
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<td>-1.387</td>
<td>.166</td>
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<tr>
<td>Environmental protection publicity</td>
<td>.028</td>
<td>1.115</td>
<td>.266</td>
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<tr>
<td>Government emphasis</td>
<td>.064</td>
<td>1.678</td>
<td>.094</td>
</tr>
<tr>
<td>Cognition of the beautiful countryside</td>
<td>.135</td>
<td>2.157</td>
<td>.032</td>
</tr>
</tbody>
</table>

**Discussion and Conclusions**

By analyzing household’s cognition of the beautiful countryside and the current situation of household’s environmental cognition in Zhejiang Province, it turns out that: at present, rural households’ environmental awareness is low, but they are beginning to realize the importance of the rural environment. Farmer cognition of the beautiful countryside construction has obvious spatial differences between different regions in Zhejiang province. There are positive correlations between farmer cognitive on the beautiful countryside construction and their income. In order to further deepen the beautiful countryside construction, improve farmers' perception of environment, we suggest management departments to further increase the rural environmental protection propaganda, encourage and guide farmers to participate in the protection and management of the rural environment actively by necessary incentives. When formulating policy measures, the relevant administrative departments should pay more attention to the farmers' concerns and their vital interests, and carry out some policies and measures to improve the effectiveness of the policy measures.

**Acknowledgement**

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**References**


