Article

Farmers’ Livelihood Adaptability in Rural Tourism Destinations: An Evaluation Study of Rural Revitalization in China

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Abstract: Rural tourism is one of the important ways to achieve rural revitalization and one of the choices for farmers to improve their viability. Therefore, the socio-ecological systems (SES) analysis framework and obstacle factor analysis can provide a new perspective for the evaluation of farmers’ behavior adaptation processes. In order to test the adaptation mechanisms of farmers’ lives in rural tourism destinations, we applied this analysis framework to Ying-Tao-Gou Village in China. The study found that the livelihood adaptation strategies of local farmers can be divided into the categories of “tourism livelihood”, “part-time livelihood”, “worker livelihood”, and “farming livelihood”. The livelihood adaptation of local farmers presented a relatively balanced picture. There were significant differences in the livelihood adaptability of different types of farmers, but tourism farmers had the strongest livelihood adaptability. There were various barriers to the livelihood adaptation of different types of farmers, such as household savings and education level. Finally, to improve the adaptability of farmers’ livelihoods, amendments can be made in policy formulation, tourism development, and by the farmers themselves. This study is of great significance for the government in formulating policies to improve people’s livelihoods, to stimulate the vitality of rural development, and to accelerate the development of rural revitalization.

Keywords: rural tourism; farmers’ livelihood; adaptive evaluation; obstacle factor model; the village of Ying-Tao-Gou

1. Introduction

In 2008, the first international theoretical article on sustainable tourism livelihoods proposed a novel sustainable tourism livelihood approach (STLA), emphasizing that the analytical framework for sustainable tourism livelihoods should be placed in a broader tourism context rather than considered merely as a tool [1]. In 2009, Tao and Wall discussed the feasibility of tourism as a sustainable livelihood strategy and argued that tourism should be used as a livelihood supplement rather than a livelihood alternative [2]. Nowadays, China’s rural revitalization strategy has five basic requirements: prosperous industry, livable ecology, civilized countryside lifestyle, effective governance, and a prosperous life. Rural tourism, as one of the important driving forces for the realization of the basic requirements of rural revitalization, has attracted increased attention from global tourism and academic circles [3].

Rural tourism not only plays a role in rural areas in remote regions [4] but also has an impact on rural areas with various social–ecological functions, such as production, social life, culture, ecology, and so on, especially for farmers [5]. Rural tourism can cause changes to and lead to the building of farmers’ lifestyles, transform a large number of traditional subsistence farmers into modern subsistence
farmers, change the farmers’ livelihood capital reserves and their combination of activities [6], alleviate poverty, increase survival opportunities, improve welfare and abilities, ensure the diversification of food supply and livelihood, improve the living environment [7,8], improve the quality of life of ethnic minorities [9], and contribute to the realization of environmental, economic, social, and cultural sustainable development [10]. It can also be a way to diversify livelihoods [11]. However, while rural tourism brings opportunities to a rural social economy and ecological environment, as an external pressure factor, there are also many risks and challenges. Farmers are clearly the source of social (re)organizations in any rural social ecosystem. How farmers adapt their livelihood to the changes brought by the development of rural tourism and how they use their inherent adaptability have become important subjects to measure the effect of the implementation of the strategy of rural revitalization in China. Therefore, the purpose of this study is to understand the adaptation mechanisms of farmers’ livelihoods in rural tourism destinations.

In 1998, Scoones noted that sustainable livelihoods should include the creation of working hours; poverty reduction; well-being and capacity; adaptability, vulnerability, and resilience; and sustainability based on natural resources [12]. In 2001, the sustainable livelihoods analysis framework was developed by the United Kingdom Department for International Development (DFID) to tackle poverty, and this has since evolved into an important tool for studying community and individual livelihoods [13]. The framework consists of five parts: vulnerability background, livelihood capital, livelihood strategy, structure and process, and livelihood outcomes. Livelihood capital is at the heart of a sustainable livelihood framework [12]; sustainable livelihood capital is generally summarized as human capital, natural capital, material capital, social capital, and financial capital. A livelihood strategy refers to a farmer’s activity to achieve his or her livelihood goals, including productive activities, investment strategies, reproductive arrangements, and so on [14]. Scholars have sometimes made a subjective division of livelihood strategies on the basis of the sustainable livelihood framework [12], farmers’ livelihood activity types and their share [15], household production, and management income share [16]. Researchers have used Soltanis’s principal component analysis to objectively classify these characteristics [17]. The division basis is very diversified; however, in the process of achieving livelihood results for farmers, livelihood strategies should also be constantly changed to adapt to the change in livelihood background [18].

Adaptation research based on the social ecosystem has gradually become one of the key areas of sustainable scientific research since the 1990s [19]. Adaptability under this framework is defined as the dynamic adjustment and coping strategy of subjects whose behavior is being studied [20]. Obviously, in the framework of sustainable livelihoods, rural tourism represents a livelihood strategy for farmers to deal with the outside world. The current perspective of adaptation research extends from the national to the local and micro levels, as well as to the regional scale; examples include climate change [21], landless farmers [22], and community tourism [23]. The academic community has also obtained many results from adaptive evaluation in the field of rural tourism, focusing on adapting to economic, environmental, social, and cultural impacts and the reconstruction of rural tourism in development [19]; adapting to the rural tourism livelihood model [24]; and evaluating the adaptability of tourism research [10]. Research subjects have focused on communities and farmers [25–29]. For example, Pandy et al. proposed three main systems—social, economic, and environmental—in this context and addressed human and financial capabilities in an adaptive capacity assessment framework [24]. Yu Zhong Lei et al. developed an assessment system for farmers’ adaptability using the framework of sustainable livelihood based on the resilience and vulnerability theory of peasant household adaptability [29]. He Xu et al. found that the adaptation effect of peasant households in rural tourism locations formed a spatial distribution pattern at the county scale with “circle radiation, two-wing envelope, and peripheral linkage” [28].

At present, abundant research achievements have been obtained with respect to the concept, evaluation system, theoretical methods, and case analysis of adaptability in China and abroad. The livelihood capital and livelihood strategies of farmers are relatively mature, [10,29–34]. However, there is a lack of research on the livelihood adaptive strategies of farmers and on how to adapt to local
problems. At the same time, there are only a few studies on the livelihood adaptability of farmers in rural tourism destinations which can provide a new research perspective for poverty alleviation and development, environmental restoration, and harmonious development between humans and the land and which are conducive to the implementation of rural tourism poverty alleviation.

Therefore, this paper attempts to remedy this lack of research. In order to achieve the purpose of understanding the adaptation mechanisms of rural tourism-destination farmers’ livelihoods, we selected Ying-Tao-Gou Village in Shiyan City, Hubei Province, China as our empirical research case. This village is located in the core protection zone of the middle route of the South-to-North Water Diversion Project. Thus, this paper first analyzes the background of the case, then constructs the rural family adaptability evaluation system through data analysis and presents the identification of obstacles; finally, we summarize the relevant characteristics of farmers’ livelihood adaptability under the rural revitalization background and develop a mechanism to promote the sustainability of farmers’ livelihoods in order to provide support for rural revitalization and rural transformation and development.

2. Materials and Methods

2.1. Study Area

Ying-Tao-Gou Village is located on Qinba Mountain in the northwest of Hubei Province, bordering Shiyan City and Yunyang District. It is 4 km away from Chengguan Town in Yunyang District to the north and 10 km away from Shiyan District to the south. The village covers an area of 7.7 square kilometers and has 11 village groups, 526 households, and a total population of 1888 people. Since 2008, due to its unique natural environment, its location advantage of being “one village linking two cities” (Yunyang and Shiyan), local rural resources, and tourism industry advantages such as cherry blossoms, cherries, and strawberries, Ying-Tao-Gou Village has been vigorously developing its rural tourism recently. In different periods of rural tourism development, the living conditions of its farmers have also changed. In retrospect, according to the changes of the economic, environmental, and participation modes, the development process of rural tourism in Ying-Tao-Gou Village [35] can be divided into three main stages: the initial stage, the development stage, and the stable stage (Figure 1). We found that the development of rural tourism has changed farmers’ way of life in Ying-Tao-Gou Village. The rural tourism development mode of “company cooperative farmers” has changed the local industrial structure and production and living environment, and more farmers are now participating in tourism. Besides this, the village also won the “most beautiful village in China”, “most beautiful leisure village in China”, “Hubei Province leisure agriculture demonstration site”, and “Hubei Province civilized village” awards, and other honorific titles. This fully shows the importance and representativeness of Ying-Tao-Gou Village in rural tourism. Therefore, taking the village as an example certainly has great practical significance.
2.2. Methods

2.2.1. Data Sources

Referring to Wen Xin [22] and Chen Jia [36], we used a mixed-methods approach for our research design, using quantitative questionnaires, qualitative semi-structured interviews, and in-depth interviews. The semi-structured interviews and in-depth interviews play a role in the classification of farmers’ livelihood types and the identification of obstacle factors. The semi-structured interview was used to determine the help the government and enterprises provide in the process of rural tourism development in Ying-Tao-Gou Village [22]. On that basis, the in-depth interviews were used to obtain the effect of farmers’ household livelihood adaptation. The semi-structured interviews and the in-depth interviews were performed on the basis of the questionnaire survey [36]. The questionnaire survey was used to obtain important information on farmers’ livelihood capital and farmers’ cognition of rural tourism development.

In order to determine the role of government and enterprises in the development of rural tourism in Ying-Tao-Gou Village, we conducted four semi-structured interviews between 10 and 19 July 2019.
The interviewed agencies were the Yunyang District Government Office, the Cultural Tourism Bureau, the Ying-Tao-Gou Village Committee, and the Ying-Tao-Gou Village Tourism Development Co., Ltd. The subjects of the semi-structured interviews were as follows: (1) the social, economic, and cultural development of Ying-Tao-Gou Village; (2) the rural tourism development policies in Ying-Tao-Gou Village; and (3) the assistance provided by the organization in the development of rural tourism in Ying-Tao-Gou Village. This provided a basis for the classification of farmers’ livelihood types [22].

In order to understand the effect of farmers’ livelihood adaptation more directly and deeply, we selected the leaders of four groups in Ying-Tao-Gou Village as representative farmers and conducted four in-depth interviews. The theme of the interview was the influence of rural tourism on livelihood and the adaptation strategy of farmers in Ying-Tao-Gou Village. The main subjects of the interviews were as follows: (1) the livelihood strategies that farmers adopted before the development of rural tourism; (2) changes in farmers’ livelihood strategies following the development of rural tourism; and (3) the obstacles that farmers consider to hinder their adaptation to the development of rural tourism. The transformation and evolution process of the livelihood strategy of Ying-Tao-Gou Village farmers was obtained; this provided a basis for the classification of farmers’ livelihood types and the identification of obstacles [36].

Due to the limited availability of data, we used questionnaires for the supplementation of more in-depth research. The questionnaire used a “face-to-face” method [7]. Each household survey took about 1 h to ensure the authenticity, scientific validity, and reliability of the obtained data. A total of 122 questionnaires were distributed, ultimately resulting in 117 valid questionnaires. The response rate of the questionnaire was 95.90%. The household survey focused on the farmers’ ability to adapt to the development of rural tourism, with respect to three aspects: (1) the basic situation of the farmers’ household, age structure, education level, family size, etc. (Table 1); (2) the livelihood capital status of the farmers’ household, including the area of cultivated land, household savings, social networks, etc.; and (3) whether the farmers were involved in rural tourism.

### Table 1. Descriptive statistics of the investigated farmers.

| Index                      | Attribute Value | Number | Proportion (%) |
|----------------------------|-----------------|--------|----------------|
| Gender                     | Male            | 86     | 73.50%         |
|                            | Female          | 31     | 26.50%         |
| Age                        | ≤30 years old   | 7      | 5.98%          |
|                            | 31–59 years old | 67     | 57.27%         |
|                            | ≥60 years old   | 33     | 49.25%         |
| Family population          | 1–2 members     | 12     | 10.26%         |
|                            | 3–4 members     | 47     | 40.17%         |
|                            | 5–6 members     | 51     | 43.59%         |
|                            | 7 members or more| 7      | 5.98%          |
| Education level            | Illiteracy      | 23     | 19.66%         |
|                            | Primary school  | 40     | 34.19%         |
|                            | Junior school   | 39     | 33.33%         |
|                            | High school     | 9      | 7.69%          |
|                            | College and above| 6      | 5.13%          |
| Whether they participated in tourism | Yes | 51     | 43.59%         |
|                            | No              | 66     | 56.41%         |

### 2.2.2. Research Methods

Methods for determining the farmers’ livelihood adaptability indexes and influencing factors were taken from the works of Wen Xin [22], Wu Kong Sen [37], and He Xu [28], et al. To ensure the consistency of the various data dimensions, the data obtained from the questionnaires were first standardized. The range standardization method was adopted to process the original data, while the entropy method was used to calculate the weight of the farmers’ livelihood adaptability index. At the
same time, the impact of rural tourism on the farmers’ livelihood was measured by calculating the farmers’ livelihood adaptability index. In addition, in order to identify the main impeding factors (obstacles) and the extent to which obstacles affected the improvement of the farmers’ livelihood adaptability, in our study, the barrier factor model was applied to calculate the impact of various indicators on rural households’ livelihood adaptability.

To determine the weight of the indicators of farmers’ livelihood adaptability, the following formulas were used [22]:

Positive indicators: \( X_{ij}' = X_{ij} - \min(X_j)/\max(X_j) - \min(X_j) \),

(1)

Negative indicators: \( X_{ij}' = X_{ij} - \min(X_j) - X_{ij}/\max(X_j) - \min(X_j) \),

(2)

where \( X_{ij} \) is the original value of the \( j \)-th index of the \( i \)-th farm household, \( \max(X_j) \) is the maximum value of the \( j \)-th index, \( \min(X_j) \) is the minimum value of the \( j \)-th index, and \( X_{ij}' \) is the standardized value of the index.

Next, we calculated the farmers’ livelihood adaptability index by [28]

\[ A = \sum W_i X_i \]

(3)

where \( A \) represents the adaptability index of farmers’ livelihoods, \( W_i \) is the weight value of the \( i \)-th indicator, and \( X_i \) is the standardized value of the \( i \)-th indicator.

Subsequently, we calculated the degree of impact of various indicators on the adaptability of farmers’ livelihoods by using the following formulas [37]:

\[ P_{ij} = 1 - X_{ij}' \]

(4)

and

\[ O_j = (G_j \times P_{ij}) / \sum_i (G_i \times P_{ij}) \times 100\% \]

(5)

where \( O_j \) represents the degree of the obstacle to the adaptability of the \( j \)-th indicator of the livelihood of farmers, \( X_{ij}' \) represents the standardized value of the indicator (that is, the normalized value obtained by Equation (1) and Equation (2)), \( P_{ij} \) represents the index deviation (the gap between the single index \( j \) and the optimal target value), and \( G_j \) represents the factor contribution rate (that is, the influence of a single index \( j \) on the overall adaptability, generally expressed by the weight corresponding to the index).

By the calculation of Equation (5), the impact of various relevant indicators on farmers’ livelihood adaptability could be understood, facilitating the identification of the obstacles which affect different types of farmers’ livelihood adaptability as well as the degree of restriction caused by these obstacles, which is conducive to the determination of the farmers’ livelihood adaptation mechanisms.

3. Results and Discussion

3.1. Evaluation Index System

As the core of studies on system adaptability, the state of adaptive capacity is normally an internal factor that affects the adaptive behavior of farmers and further determines the type of adaptation practice of farmers. Currently, most scientific research on the assessment of adaptability involves the elaboration of resilience and vulnerability frameworks [38], which mainly cover sustainable livelihood analysis, the social-ecological system, the vulnerability assessment system, and an “exposure–sensitivity–adaptability” analysis. Our study starts from the framework of sustainable livelihoods, draws on the adaptive capacity assessment framework proposed by Pandey et al. [24], and describes the actual situation in existing studies and cases. It is based on generic principles, such as
the adaptation to nature, and constructs an adaptive evaluation index system for rural households’ livelihoods in rural tourism destinations, including the six evaluation dimensions of the farmers’ natural, material, social, financial, human, and cognitive abilities (Table 2).

| Natural capacity | Farming capacity | Description of Indicators | Average Value | Standard Deviation | Weight |
|------------------|------------------|----------------------------|---------------|--------------------|--------|
| Cultivated area  | Land area        |                            | 2.5692        | 1.2924             | 0.0030 |
| Arable land quality | Land quality assignment: 1. Very poor, 2. Poor, 3. Adequate, 4. Fertile, 5. Very fertile | 3.0769        | 0.6013             | 0.0069         |
| Forest and fruit area | Land quality * land area | 0.8291        | 0.7012             | 0.0031         |
| Forest and fruit land quality | Land quality assignment: 1. Very poor, 2. Poor, 3. Adequate, 4. Fertile, 5. Very fertile | 3.0598        | 0.6704             | 0.0034         |

| Livelihood adaptability | Material capacity | Description of Indicators | Average Value | Standard Deviation |
|-------------------------|-------------------|----------------------------|---------------|--------------------|
| Housing structure       | Housing area      | Housing area               | 155.0256      | 72.0914            |
| Family material asset value | The sum of the quantity and unit price of household durable goods such as beds, air conditioners, washing machines, TVs, computers, refrigerators, bicycles, electric cars, motorcycles, cars, mobile phones, etc. | 58142.4103    | 56993.5494         |
| Ease of house reconstruction and expansion | Assignment: 1. Very difficult, 2. Not easy, 3. Quite easy, 4. Easy, 5. Very easy | 3.098         | 0.7876             |
| Neighborhood            | Neighborhood harmony, 1 = very bad, 2 = bad, 3 = fair, 4 = good, 5 = very good | 3.8462        | 0.5936             |
| Social network          | Are there any family members, relatives, or friends serving in the administrative offices of villages and towns? 1 = no, 2 = yes | 1.0941        | 0.2919             |
| Trust in those around you | Assignment: 1 = very distrustful, 2 = relatively distrustful, 3 = fair, 4 = relatively trustful, 5 = very trustful | 3.6667        | 0.6918             |
| Total household labor   | Number of family laborers (farm workers aged 16-65 who are not in school and are healthy) | 2.7778        | 0.9348             |
| Educational level of head of household | Assignment: 1 = illiterate, 2 = primary, 3 = junior, 4 = high, 5 = college and above | 2.4615        | 1.0422             |
| Total family population | Total family population (Unit: person) | 4.5213        | 1.4239             |
| Opportunities for families to receive skills training | Assignment: 1 = very few, 2 = few, 3 = average, 4 = several, 5 = many | 2.7265        | 0.9574             |
Table 2. Cont.

| Index            | First Indicator   | Second Indicator   | Description of Indicators          | Average Value | Standard Deviation | Weight |
|------------------|-------------------|--------------------|-----------------------------------|---------------|--------------------|--------|
| Livelihood       |                    |                    | Family savings                    | 5.9854        | 5.3833              | 0.0857 |
| Financial        |                    |                    | Financial capacity                |               |                    |        |
|                  |                    |                    | Ease of borrowing                 | 3.2649        | 0.6458              | 0.0566 |
|                  |                    |                    | Assignment                        |               |                    |        |
|                  |                    |                    | 1. Very difficult                  |               |                    |        |
|                  |                    |                    | 2. Not easy                       |               |                    |        |
|                  |                    |                    | 3. Quite easy                     |               |                    |        |
|                  |                    |                    | 4. Easy                           |               |                    |        |
|                  |                    |                    | 5. Very easy                      |               |                    |        |
|                  |                    |                    | Ease of loan                      | 3.19681       | 0.7159              | 0.0524 |
|                  |                    |                    | Assignment                        |               |                    |        |
|                  |                    |                    | 1. Very difficult                  |               |                    |        |
|                  |                    |                    | 2. Not easy                       |               |                    |        |
|                  |                    |                    | 3. Quite easy                     |               |                    |        |
|                  |                    |                    | 4. Easy                           |               |                    |        |
|                  |                    |                    | 5. Very easy                      |               |                    |        |
| Cognitive        |                    |                    | Awareness of tourism policy       | 3.4529        | 0.7898              | 0.0420 |
| ability          |                    |                    | Assignment                        |               |                    |        |
|                  |                    |                    | 1. Do not understand at all        |               |                    |        |
|                  |                    |                    | 2. Do not understand very much     |               |                    |        |
|                  |                    |                    | 3. Generally understand           |               |                    |        |
|                  |                    |                    | 4. Understand                     |               |                    |        |
|                  |                    |                    | 5. Completely understand          |               |                    |        |
|                  |                    |                    | Understanding of tourism          | 3.8102        | 0.6272              | 0.0296 |
|                  |                    |                    | development opportunities         |               |                    |        |
|                  |                    |                    | Assignment                        |               |                    |        |
|                  |                    |                    | 1. Do not understand at all        |               |                    |        |
|                  |                    |                    | 2. Do not understand very much     |               |                    |        |
|                  |                    |                    | 3. Generally understand           |               |                    |        |
|                  |                    |                    | 4. Understand                     |               |                    |        |
|                  |                    |                    | 5. Fully understand               |               |                    |        |
|                  |                    |                    | Attitude towards tourism          | 4.2051        | 0.5317              | 0.0294 |
|                  |                    |                    | development                       |               |                    |        |
|                  |                    |                    | Assignment                        |               |                    |        |
|                  |                    |                    | 1. Very unwilling                  |               |                    |        |
|                  |                    |                    | 2. Unwilling                       |               |                    |        |
|                  |                    |                    | 3. Indifferent                     |               |                    |        |
|                  |                    |                    | 4. Willing                         |               |                    |        |
|                  |                    |                    | 5. Very willing                    |               |                    |        |

Land Quality * Land area indicates how much benefit a piece of Land can produce

Natural capacity reflects the adaptation of farmers to the natural environment and is mainly reflected in the area of arable land, forest area, and land quality owned by farmers; material capacity refers to the external facilities and equipment to which farmers choose to adopt, including the value of household physical assets, housing areas, housing structures, etc.; social capacity reflects the social resources on which farmers rely when they must adapt to changes in the external environment, including social networks and neighborhood relationships, and their degree of trust in the people around them; financial capacity refers to the funds that farmers can use to adapt to external shocks, agglomeration, and transfer, including household savings, loan opportunities, etc.; and human capacity and cognitive ability refer to the ability of farmers to choose rational adaptation behaviors by adopting different livelihood strategies in order to adapt to changes in the external environment, using their livelihood resources and cognitive opportunities, training opportunities, awareness of tourism policies, and attitudes towards tourism development.

3.2. Categorization of the Adaptive Behavior of Farmers

The adaptation of rural households to the development of rural tourism and the means of livelihood adopted determine the comprehensive performance of rural households' livelihoods. Driven by different family characteristics, regional characteristics, and other factors, the farmers in Ying-Tao-Gou Village have chosen different livelihood models and employment behaviors to adapt to the development of rural tourism. Our survey found that the development of tourism has led to a small number of relocations from the village due to the lack of natural livelihood resources there, such as cultivated land. However, most farmers can still adopt a variety of adaptation strategies to respond to external changes. At the same time, most farmers did not adopt a single adaptation strategy before tourism development but were able to effectively adopt multiple strategies to improve their
overall livelihood adaptation capabilities. The types and time distribution of farmers' participation in production activities were obtained according to the results of semi-structured interviews and in-depth interviews. Therefore, we refer to Zhaowenjuan [39], Atticari [40], and others to divide the types of livelihood. They can be classified into four types of livelihood adaptation: “tourism livelihood”, “part-time livelihood”, “worker livelihood”, and “farming livelihood” (Table 3).

Table 3. Farmers’ livelihood adaptation types.

| Livelihood Adaptation Types | Livelihood Adaptation Behavior | Number of Respondents | Proportion |
|-----------------------------|--------------------------------|-----------------------|------------|
| Tourism livelihood          | Participate in tourism (operating in home stays, farmhouses, tourist shops, tourist restaurants, etc.), off-season labor/farming | 27                     | 23.08%     |
| Part-time livelihood        | Participate in tourism (selling vegetables/selling fruits), farming/laboring | 22                     | 18.80%     |
| Worker livelihood           | Perennial work/main work, leisure work, and agriculture | 38                     | 32.48%     |
| Farming livelihood          | Agriculture-based and odd jobs | 30                     | 25.64%     |

The “tourism livelihood” type refers to those farmers who have the highest degree of participation in tourism; that is, they participate in rural tourism by operating in guesthouses, farmhouses, tourist shops, tourist restaurants, etc. During the off-season, some of these farmers will work locally or do alternative jobs; they account for the smallest proportion of the respondents. Another type is the “part-time livelihood” type. This type of livelihood farmers participates in tourism in only one way, mainly by selling fruits or vegetables, but most of the time they are engaged in work/agriculture. In total, 32.48% of the farmers have a “worker livelihood”. They choose to go out to work beyond the village for a living but go home to work when they are not working away from home. Next, “farming livelihood” farmers choose to combine agriculture with working nearby. Finally, 24.64% of the respondents were shown to have a “farming livelihood”, which means they are only engaged in agricultural work.

3.3. Analysis of Farmers’ Adaptive Capacity

A high degree of adaptability in farmers’ livelihoods can help them to resist external risks and effectively maintain their livelihood stability. As one of the alternatives to the sustainable development of the rural economy, the development of rural tourism is gradually changing the adaptation capacity of farmers’ livelihoods [25]. The adaptability of farmers’ livelihoods is mainly demonstrated through the combined effects of their natural, material, social, human, financial, and cognitive capacities (Figure 2). On the whole, the livelihood adaptability index of the farmers in Ying-Tao-Gou Village has a strong symmetry, at 0.4161 (Figure 2), which is close to the standard normal distribution, and the median is close to the middle of the range, indicating that the farmers’ adaptive capacity is more balanced. From the perspective of the six dimensions of adaptive capacity, the highest rate in the range is the human capacity of the farmers, and the lowest is their natural capacity, indicating that human capacity is the basic capital for the survival and development of farmers, while the size and quality of the total determine the survival status of the farmers. As a result of climate change, floods and droughts occur every year in this area, which directly affects the income of farmers’ cultivated land, forest land, and fruit land. At the same time, because Ying-Tao-Gou Village is located in a mountainous area, the actual cultivated land of farmers is limited, and most of their farms are on hill slopes. Furthermore, the quality of the land is poor. Additionally, part of the farmland that has been used for the development of the tourism industry is now occupied. This worsens the natural ability of the farmers to adapt. The medians for social and cognitive abilities are closer to the lower quartile and there are more high outliers for social abilities, which are positively skewed, indicating that the social and cognitive abilities of farmers are unevenly distributed, and that the social and cognitive abilities of most farmers are low.
workers. Farming livelihood-type farmers always use their land as the most basic resource for survival; with the increase in the number of tourists that they have received. They have the largest stocks of vegetables to tourists, and their basic income is lower than that of tourism subsistence and migrant villagers’ groups, the households usually have less contact with the surrounding population, and the number of public officials at the village level or above is very small. Here, the social networks of most farmers are limited. This means that the farmers’ cognitive ability and social ability appear to be in a low-level equilibrium situation (Figure 2a).

As a typical area of rural tourism, in the process of tourism policy promotion, the development of Ying-Tao-Gou Village will only be accepted by those peasant households who can participate in tourism. The difference in tourism profitability also leads to differences in farmers’ attitudes towards tourism development. In addition, because of the poor local traffic and the distance between the villagers’ groups, the households usually have less contact with the surrounding population, and the number of public officials at the village level or above is very small. Here, the social networks of most farmers are limited. This means that the farmers’ cognitive ability and social ability appear to be in a low-level equilibrium situation (Figure 2a).

There are some differences in the livelihood adaptability of different types of farmers under the influence of tourism development (Figure 3). The adaptability index of the four types of livelihood households was calculated, and the tourism livelihood-type households had the largest livelihood adaptability score at 0.4784. The second type of households were the worker livelihood and part-time livelihood types, whose adaptability scores were 0.4217 and 0.399, respectively. Finally, the score of the agricultural livelihood type was 0.3654. Tourism livelihood-type farmers appear to participate in tourism to the highest degree. The housing areas and labor force of these farmers have been improved with the increase in the number of tourists that they have received. They have the largest stocks of physical and human resources and the strongest ability to adapt to their new livelihoods. It is understood that most of the outdoor employment for migrant workers is provided by relatives and friends. The social capacity of the tourism livelihood farmers is strong and their working income is greater than that of the migrant farmers, whose livelihood adaptability is second highest. Due to their low level of participation in tourism, part-time tourism farmers are limited to selling fruits and vegetables to tourists, and their basic income is lower than that of tourism subsistence and migrant workers. Farming livelihood-type farmers always use their land as the most basic resource for survival; the poor quality of the arable land and the forest and fruit areas of Ying-Tao-Gou Village directly affect the minimum livelihood adaptability of farming livelihood-type farmers.

![Figure 2](image_url)
3.4. Identification of the Obstacle Factors which Affect Farmers' Livelihood Adaptive Capacity

According to the results of the questionnaire surveys, semi-structured interviews, and in-depth interviews, we can see that, due to the different environments of the different types of farmers' livelihoods and the combinations of the livelihood adaptation behaviors of the farmers themselves, there are also differences in the factors that constrain and limit the improvement of farmers' livelihood adaptability in the long term. Each index layer factor is calculated by using the obstacle factor model to obtain the livelihood adaptation obstacle factors and the degree of obstacles faced by different types of farmers. The first three of these obstacle factors in Table 4 are considered to be the main obstacle factors.

1. Tourism livelihood type: Household savings, household durable goods value, and family training opportunities are the main obstacles to the improvement of the livelihood adaptability of this type of farmer. The value of household savings and household durable goods directly affects the number and quality of tourists received by such farmers. At the same time, the opportunity for families to receive training affects the quality of the entire family’s labor force. When families have more training opportunities, farmers will take advantage of them. The more rational livelihood choices are those that can be made by taking into account the livelihood risks brought by tourism development.

2. Part-time livelihood type: The number of household members, the size of the labor force, and the area of forest and fruit-growing land have become the key factors that hinder the improvement of the livelihood adaptability of this type of farmer. The reason for this is that the proportion of elderly people and children supported by this type of farmer and farming family is relatively large, and the size of the labor force and the area of the forest and fruit-growing land directly determine the quality of the farming labor force and the fruit sales situation. This further affects the actual household income of this type of peasant household, which therefore restricts the possibility of comprehensive adaptive behavior in many respects.

3. Worker livelihood type: The main obstacles to the livelihood adaptation of this type of farmer are the size of the labor force, the education level of the head of household, and the social network. When the total labor force is large, the forms and structure of employment of rural households tend to be more diversified, and the possibility of employment beyond the village or in urban areas is greater; the education level of household heads affects the quality of the main labor force of their families, and highly-educated rural households often have a better livelihood. The skill level of decision-makers can determine the degree to which livelihood resources are efficiently allocated; when family members of farmers’ households are engaged as national civil servants, it encourages working beyond the farm.

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![Figure 3. Different types of farmers' livelihoods and their adaptability index. (TL, tourism livelihoods; PL, part-time livelihoods; WL, worker livelihoods; FL, farming livelihoods.) Data source: Data from supplementary Excel File: Data on livelihood adaptation of rural tourism farmers.](image-url)
(4) Farming livelihood type: The area of cultivated land, forest land, and fruit-growing land and the number of family members are the main obstacles that affect the improvement of the livelihood adaptability of this type of farmer. This type of farmer is highly dependent on agricultural cultivation. The area of cultivated land, forest land, and fruit-growing land are the main factors that affect agricultural production. The size and quality of the actual area will have a significant impact on the livelihood income of this type of farmer. Their adaptation behavior is apparently also affected.

| Table 4. Adaptive disability factors and barrier indexes for different types of farmers. |
|--------------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Livelihood Adaptation Types          | Disorder Diagnosis              | Barrier Factor Sorting           |                                 |                                 |                                 |
|                                     | Obstacle factors                | Family savings                  | Home durable goods value        | Family training opportunities   | House area                      |
|                                     | Obstacle index                  | 4.68%                           | 8.12%                           | 7.55%                           | 7.20%                           |
| Tourism livelihood                   | Obstacle factors                | Total family population         | Labor force size                | Precipitation change degree     | Family savings                  |
|                                     | Obstacle index                  | 8.44%                           | 9.12%                           | 6.09%                           | 8.00%                           |
| Part-time livelihood                 | Obstacle factors                | Educational level of head of household | Social network               | Family savings                  | House area                      |
|                                     | Obstacle index                  | 10.38%                          | 9.12%                           | 8.09%                           | 8.99%                           |
|                                  | Worker livelihood                | Obstacle factors                | Labor force size                | Educational level of head of household | Social network               |
|                                     | Obstacle index                  | 8.70%                           | 8.49%                           | 8.14%                           | 7.93%                           |
|                                  | Farming livelihood              | Obstacle factors                | Temperature change degree       | Precipitation change degree     | Total family population         |
|                                     | Obstacle index                  | 8.70%                           | 8.49%                           | 8.14%                           | 7.93%                           |

3.5. Construction of the Farmers’ Livelihood Adaptation Mechanisms

A village is a special socio-ecological system. In the context of tourism development, farmers need to adjust their adaptive capacity to deal with the social, economic, and ecological pressures and disturbances that arise from tourism development. According to the results of the above analysis, we get the adaptive evolution mechanism of farmers’ livelihood in rural tourism destination (Figure 4). As the core of adaptation, the transformation of farmers’ livelihood adaptive capacity is mainly a response to external disturbances in the form of the development of rural tourism, and the result of the response will become the driving factor for the change of farmers’ livelihood adaptive capacity in the next stage. This adaptation is of critical importance.

Driven by rural tourism, farmers’ livelihoods can benefit from the opportunities provided by policies aiming at assistance, social network reconstruction, the improvement of living standards, and the improvement of the living environment brought about by tourism development. However, it is also difficult to avoid rising prices, damage to the ecological environment, and, in future, challenges and risks such as widening income disparities. Changes outside the system and the rationality of the farmers’ own development will stimulate better-off farmers in the system to recombine and reallocate factors such as labor and capital and adopt appropriate livelihood behaviors to improve their ability to adapt to new livelihoods. In this way, they can adapt to changes in the livelihood environment brought about by tourism development and then strive for better livelihood status. After the development of tourism in Ying-Tao-Gou Village, farmers have apparently chosen a variety of livelihood adaptation behaviors, and new types of farmers have emerged, including those with tourism livelihoods and part-time livelihoods and migrant workers. Although the overall livelihood adaptability of the farmers in Ying-Tao-Gou Village has significantly improved as a whole, it has been limited by factors such as the effect of tourism policy implementation, weak industry, the marked off-peak season, only having a single way for farmers to participate in tourism, and the farmers’ learning ability. Thus, there is still much room for improvement in terms of the livelihood adaptability of farmers in this area.
3.6. Discussion

In the context of rural tourism, many studies on farmers’ livelihood adaptability have been carried out. A comparison shows that scholars often use participatory assessment methods and structured interviews to quantitatively analyze human capital, social capital, financial capital, material capital, and natural capital. It is found that farmers’ livelihood adaptation choices are limited by current policies and their resources [36]. Human capital and financial capital are important influencing factors [38]. Material capital, financial capital, and social capital affect farmers’ willingness to choose their livelihoods, among which the number of borrowers is one of the most critical factors [22]. At the same time, vocational skills training, social security, job stability, and government support are also the main limiting obstacles [23], and different backgrounds lead to the formation of a variety of livelihood types. Moreover, Luo Xian Rong found that supportive initiatives and appropriate monitoring and management strategies are needed in the development of tourism to help local populations adapt to new conditions [41]. Attention should also be given to the lowest levels of government, as their task is to implement sustainable livelihood initiatives for people’s lives [42].

In contrast, this paper analyzes the adaptability of and obstacles to farmers’ livelihoods from the perspective of human capital, material capital, social capital, financial capital, natural capital, and cognitive capital. It is found that there are four kinds of adaptation options for farmers: tourism livelihood, part-time livelihood, worker livelihood, and farming livelihood. At the same time, we find that different livelihood types face different obstacles. Material capital, social capital, human capital, and financial capital may be barriers to different livelihood strategies. Natural capital is the main obstacle faced by all farmers. In this paper, the value of household durable goods, family training opportunities, the education level of the head of household, the social network, and other obstacles directly or indirectly reflect the problems of farmers in the process of adapting to a change of livelihood, such as those concerning policy, industrial development, the farmers themselves, and so on. Therefore, improving farmers’ adaptability requires changes in their livelihood in terms of three aspects: policy consciousness, industry consciousness, and farmers’ consciousness.

(1) Policy response: It is necessary to improve the farmers’ participation mechanism, introduce related rural tourism policies to improve the farmers’ developed awareness of farmers and the environment of rural tourism, and increase their livelihood capital stock. Specifically, these policies should support farmers’ independent entrepreneurship, help them to stay in the village, and provide support and guidance in farmhouse operation, guesthouse management, tourism restaurant/shop operations, and landscape planning. At the same time, the government itself might effectively implement tourism policy promotion and provide tourism-related technical
training, enrich the forms of its training, and fully mobilize the enthusiasm of the majority of farmers to undertake further on-the-job training, thereby continuously improving their livelihood adaptability to achieve a sustainable livelihood.

(2) Industry response: In order to enrich the form of farmers’ participation in tourism and increase their participation, the rural tourism industry needs to be developed and expanded. With the help of the government’s investment promotion, Ying-Tao-Gou Village may be able to increase its number of tourist attractions, routes, and characteristic agricultural and sideline products. Packaging and development efforts can promote the highlights of rural tourism and serve to form a complete industrial chain.

(3) Actors’ response: As the core of adaptation, the improvement of farmers’ livelihood capabilities also requires the farmers’ efforts. Farmers may update their concepts, adjust to their development to be consistent with environmental protection, take the initiative to find employment channels, actively participate in technical training, and enhance their ability to adapt to various livelihoods.

4. Conclusions

Based on the sustainable livelihood theory and socio-ecological systems (SES) theory, this paper analyzed the livelihood adaptability and obstacle factors of farmers in Ying-Tao-Gou Village under the background of rural tourism. The results show that, in order to adapt to the impact of rural tourism, farmers in Ying-Tao-Gou village have adopted four different livelihood adaptation strategies, namely tourism livelihoods, worker livelihoods, part-time livelihoods, and farming livelihoods. The overall livelihood adaptability index of farmers in Ying-Tao-Gou Village is about 0.4221, and the median of the data is close to the middle of the range, which indicates that the adaptability among farmers is relatively balanced. The adaptability of the four local livelihood types is reflected in the following aspects: tourism livelihood type > worker livelihood type > part-time livelihood type > farming livelihood type. Household savings, the value of household durable items, and training opportunities received by families are the main obstacles to the improvement of tourism livelihood adaptability. The number of family members, the scale of the labor force, and the area of forest and fruit land have become the key factors hindering the improvement of the livelihood adaptability of farmers who have a part-time livelihood. The obstacles to the improvement of the livelihood adaptability of migrant workers are the size of the labor force, the educational level of the head of the household, and the social network. The arable land area, fruit land area, and family members are the important factors that affect the improvement of the livelihood adaptability of the farming livelihood type.

The significance of this study is that it provides guidance for the government to formulate appropriate livelihood policies, stimulate the vitality of rural development, and accelerate the pace of rural revitalization and development.

Although this study analyzes the adaptability and obstacles of farmers’ livelihoods in terms of six basic abilities, it does not take into account the farmers’ location conditions, annual income and expenditure, and the impact of rural tourism development on farmers. It is hoped that future research will consider the development of new methods to enrich the research results concerning rural tourism farmers’ livelihood adaptability.

Supplementary Materials: The following are available online at http://www.mdpi.com/2071-1050/12/22/9544/s1, Excel File: Data on livelihood adaptation of rural tourism farmers.

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