

Article

Diagnosis of the Livelihood Sustainability and Its Obstacle Factors for Poverty-Alleviation-Relocation Residents in Tourism Communities: Data from China

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Abstract: Many poverty-alleviation-relocation projects in China resort to tourism to sustain immigrants' livelihood in new communities. However, how tourism contributes to poverty elimination and maintaining gains is yet to be discovered. Based on the sustainable livelihood concept, this study constructs a three-dimensional index system to evaluate livelihood sustainability and identify potential factors in three relocated tourism communities. Results show that most resettled residents have median-level livelihood sustainability. Livelihood capital, strategies, and environment contribute to livelihood sustainability in decreasing order. Regarding livelihood modes, tourism-led livelihood takes the first position in terms of supporting livelihood sustainability, followed by outside-work-led, local-work-led, and government subsidy-led livelihoods. Regarding obstacle factors, annual household income, number of household workers, and education levels are shared by relocated households across different livelihood modes. Aside from policy suggestions on survey sites, this study provides a holistic framework and enlightens the generalizable paradigm to the analysis of sustained livelihood via tourism development in relocated communities.

Keywords: tourism communities; relocated communities; poverty alleviation; livelihood sustainability; obstacle factors diagnosis

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1. Introduction

There have been remarkable achievements in global poverty reduction since it has steadily decreased over the past two decades [1–4]. However, these hard-won gains are not easy to maintain [5] because various factors (e.g., withdrawal of aid, disease, regional conflicts, international tensions, economic recession, and climate change, etc.) may cause those just climbing out of poverty to fall back once again [6–9]. Especially the recent outbreak of the COVID-19 pandemic has been serving as a brake in overcoming poverty by posing a more serious threat to low-income groups [10,11]. Non-pharmaceutical interventions to restrict contagion, including border controls, social distancing, and mobility restrictions [12–14], resulted in shrinking market demand [15] and a shortage of job opportunities, which damaged their livelihoods, in turn intensifying poverty re-entry [11]. Moreover, the possibility of a K-shaped recovery [15] or rising income inequality [16] during and post-pandemic implies less chance of eliminating poverty. The vulnerability of poverty alleviation impedes the achievement of the zero-poverty goal as well as other SDGs (sustainable development goals) by 2030, including zero hunger (SDG 2), decent

work and economic growth (SDG 8), and good health and well-being (SDG 3) with linkages to poverty eradication. In such contexts, sustainable poverty alleviation, namely ending poverty completely rather than temporally, is of great concern.

Among many efforts to reduce poverty worldwide, China is representative because it has contributed more than 70 percent of the world's poverty reduction since its reform and opening up in the late 1970s [17]. By the end of 2020, China officially declared that it had lifted all rural residents out of poverty [18]. According to the current rural poverty standard in China (On November 29, 2011, the Chinese government set farmers' per capita net income at 2300 yuan (2010 prices) as the new national poverty alleviation standard, which was 92% higher than in 2009 and 80% higher than in 2010. Since then, the poverty line has changed according to changes in national price indexes. By 2020, the Chinese mainland's poverty threshold has reached farmers' net income per capita at the left of 4000 yuan), 55.75 million rural people were lifted out of poverty during the 13th Five-Year Plan (2016–2020) period, with an annual 11.15 million on average [19]. This marks a new phase in China's poverty management era, i.e., the "post-poverty alleviation era" (2021–2050), when the focus has changed from poverty alleviation to preventing poverty-returning. With this shift come extensive practices in centralized resettlement [19]. This poverty-alleviation-relocation (PAR) policy has been widely implemented to resettle rural residents to improve the lives of people in inhospitable rural areas where incomes are limited by natural and geographical conditions [20].

Relocation for poverty alleviation is still in its infancy. How to maintain its achievements and develop sustainably becomes a vital question well worth discussing. Despite exiting poverty with the help of the government, those who have abandoned their past work and lifestyle are still faced with many challenges. Previous studies have reported various problems in resettlement projects, such as no significant increase in income [20–22], adaptable difficulties [23], and other physical and mental problems [24].

In this process, innovative practice is to introduce tourism development in resettled communities grounded in its ability for better economic gain, other livelihood benefits, or participation in decision-making [25–27], typified by the Rongshui Miao Autonomous County (hereinafter referred to as "Rongshui"), Guangxi Zhuang Autonomous Region, China. As a minority area, Rongshui leveraged its unique ecological and folk culture resources to exploit several exemplary tourism communities, including Mengmu Miao Village, Miao Jia Town, and Miao Mei Homeland. In these relocated communities, residents were either moved to scenic areas or encouraged to engage in the tourism business. This provides a distinctive policy experiment to understand the role of tourism in poverty reduction in a richer context, namely in government-led resettlement projects.

Nevertheless, although pro-poor tourism has been widely acknowledged in the literature, the role of tourism development in relocated communities is under-researched. The new livelihood, namely engaging in tourism businesses, may help address the aforementioned problems faced by relocated residents. However, it may also exacerbate the difficulties because of the double challenges (i.e., new environment and new livelihood) imposed on them. Moreover, since tourism is highly fragile and vulnerable to various crises, relocated communities whose livelihoods depend on tourism may bear the brunt of the crisis. In this sense, whether tourism can contribute to sustainable livelihood and poverty alleviation in relocated communities remains to be seen. We are, therefore, led to ask: (1) what is the role of tourism development in building sustainable livelihood in relocation projects to achieve long-run poverty eradication? And (2) what factors help or hinder sustainable poverty eradication in relocated tourism communities?

To answer the first question, this study introduced the sustainable livelihood approach (SLA) based on its effectiveness in poverty eradication [26,28]. As [29] put it: SLA offers "the prospects of a holistic and integrated approach in combating poverty. It supports empowerment and endorses improvement of the productivity of existing livelihood systems as well as the creation of new opportunities". Based on the traditional SLA, a broader SLA will be proposed with a full range of indicators to evaluate the livelihood

sustainability brought by tourism development in the aforementioned communities. For the second question, the obstacle factors diagnostic model will be used to analyze obstructive factors of sustainable livelihood. The results are expected to enrich the emerging body of knowledge of pro-poor tourism and may be of general applicability to regional practice in combining tourism and resettled projects to eradicate poverty.

This paper is structured as follows. Section 2 reviews the literature on related concepts. Based on that, Section 3 introduces the methodology and sets forth the conceptual framework. Section 4 evaluates the livelihood sustainability of three sampled sites and conducts obstacle factors diagnosis, respectively. Section 5 concludes with the summary of findings and discussion on the contribution and limitations of this study.

2. Literature Review

2.1. Poverty Alleviation and Relocation

For centuries, populations have relocated to alleviate poverty [30]. From the second half of the 19th century onward, scholars have investigated the passive relocation of people who live in inhospitable environments, thus defining them as ecological migrants [31–33]. The recent literature further examines the topic from various perspectives, including ecological-migration policy issues [32,34], political support for environmental refugees [35], and NGO assistance for urban environmental refugees [36]. Another strand of the literature has discussed the challenges of mass migration in view of governance capacity in migration sites [31], recurring political violence [37], and environmental disasters that lead to violent conflicts [38,39].

According to [40], migration can improve people's standard of living and production quality and effectively reduce the incidence of poverty. In the poverty-alleviation context, relocation is also proven to change livelihood strategies and habits and enhance household livelihoods [20] in both developing and developed countries, represented by China (e.g., the Poverty-Alleviation-Relocation project, PAR) [41] and US (e.g., the Moving to Opportunity project, MTO) [42]. Prior findings also suggest positive effects of relocation on employment and income improvement [21,22]. However, the negative consequences of relocation are noticeable as well. Inadaptability resulting from changing lifestyles and land loss is found to exert an influence on the physical and mental health of migrants [21,43] and hinder the achievement of sustainable poverty reduction goals [23]. For example, Kothari et al. (2002) [44] contend that ecological migrants pay a high cost for relocation: their livelihoods may worsen due to adaptation problems. According to [45], some immigrants struggle to integrate into communities and face deteriorating relationships with the original inhabitants [45]. Problems are also found in the Chinese government-led PAR, including difficulties in employment and industrial-structure transformation [24], education and cultural tolerance [46], social interaction, psychological identity [8], and pension-security issues [47].

To address the above problems, many relocated communities resort to the tourism sector to combat poverty [48,49]. Da [50] states that tourism development is an important way for PAR communities to drive up employment and income by positioning themselves more individually based on their resource endowments and internal and external conditions. In view of this, in what follows, we review the literature on tourism development in poverty alleviation.

2.2. Community-Based Sustainable Tourism and Poverty Alleviation

At the end of the 20th century, the Department for International Development (DFID) in the UK proposed the concept of pro-poor tourism (PPT) for the first time [51]. It refers to tourism that can support and benefit the poor with a focus on economic efficiency as well as comprehensive development in communities [51,52]. Since then, the role of tourism in poverty alleviation has been increasingly acknowledged in both practical and aca-

demic circles [53–55]. They believe tourism diversifies the local economy and offers additional livelihood opportunities for local communities [56–58]. Furthermore, a range of non-economic benefits has been brought by tourism, including the improvement of transport facilities, healthcare, community governance, and social well-being [59,60]. However, tourism is also subject to criticism for its negative effect on the physical environment, culture, and society [28,56,61], and the issue of economic leakage in poor areas in combating poverty [62–64].

To this end, scholars have shifted focus to sustainable tourism-eliminating poverty (ST-EP), a concept proposed by the UNWTO [65]. An early ST-EP program jointly launched by the WTO and the UNCTAD (United Nations Conference of Trade And Development) in 2002 set the stage for including sustainable tourism as part of the poverty elimination strategy [56]. Grounded in [66] about multidimensional tourism sustainability, [62] suggests a comprehensive tourism strategy including various types of sustainability (i.e., environmental, economic, social, cultural, ethical, participatory) for poverty alleviation. It can be seen that, although sharing the same purpose (i.e., poverty alleviation through tourism development) with the PPT, the ST-EP takes sustainability as its core, with the emphasis on addressing social, cultural, and environmental problems and considering all stakeholders [65,67]. As [68] suggest, the SE-TP attaches importance to the interest of tourism companies, tourists, the environment, culture, and society, etc., in addition to the economic benefits of the poor [68].

To achieve all-around improvement, some researchers insist on the active participation of the local communities [69,70], akin to previous findings that environmentally sustainable development cannot be achieved without local support [71]. In a case study, community-based tourism (CBT) management has proved to be more effective than lease-to-operate tourism (LOT) governance in maintaining a sustainable local livelihood [72,73], which helps eliminate poverty in the long run.

As discussed above, poverty alleviation can be realized through governance (i.e., relocation) and industrial development (i.e., tourism). China is a close representation of this combination. Early in 1999, at China's National Conference on Tourism Development, there was broad consensus that poor areas could exploit unique natural and cultural resources to support tourism development, from which poverty relief and benefits of multiple stakeholders would be achieved at the same time [74]. In particular, many scholars have proven the efficiency of tourism in relocated communities. Taking a poverty alleviation relocation project in Guizhou as an example, [46] believe that their abundant natural and cultural resources serve as a "bank" for relocated farmers to boost employment and income increase. Similarly, [67] positively affirm the development model of "poverty alleviation relocation in inhospitable areas + tourism" from the aspects of stable employment, income increase, education improvement, better medical care, and cultural protection. More recently, Da [50] holds that relocated poverty-alleviation communities in inhospitable areas can carry out precise positioning based on their own resource endowment to create distinctive tourism products.

Based on prior research, it can be seen that both relocation and tourism development, as well as their combination, are found to play a part in poverty reduction. However, the evidence is scattered and isolated from each other. Despite the extensive examination of poverty alleviation through relocation or tourism, less is known about the integration of the two. Moreover, the available evidence rests on the transition from "in poverty" to "out of poverty." What is largely missing in the literature is tourism's persistent and long-term effect on sustainable development after people are lifted from poverty. That said, tourism's role in the post-poverty alleviation era is barely examined. As the practical focus shifts from poverty relief to avoiding poverty returning, namely sustainable poverty alleviation, in countries such as China, there is a need to build a theoretical framework with key constructs to evaluate the efficiency of tourism in relocated poverty alleviation communities.

3. Methodology

3.1. Sustainable Livelihood Approach (SLA)

The sustainable livelihood approach (SLA) is a classic, widely-recognized framework used extensively to analyze the livelihoods of poor people [75–77]. The pentagonal livelihood assets constitute the basic framework of SLA analysis, including human, natural, social, physical and financial capitals [51]. As a multidimensional, integrated, and rational approach to poverty eradication [33], SLA was found to have lasting impact on cultural values [78], ecosystem service functions, and social well-being [79] among poor communities. Moreover, those assets equip people with abilities to counter risks and recover from potential shocks and crises [76].

SLA emphasizes the power of community residents for their knowledge of their own situation [29]. It supports empowerment over welfare [58], increases the productivity of existing livelihood systems, and more importantly, creates new opportunities [29]. In this sense, it matches reasonably well the vision of relocated tourism communities that sustainable poverty elimination is to be achieved by developing new livelihoods in the tourism industry in relocated communities [46,80]. Therefore, under the scenario combining the PAR and the CBST, the SLA approach can serve as an integrative thinking framework to evaluate the policy's efficiency and guide future practice (see Figure 1).

A caveat should be made that the concept of SLA has been extended with various factors in recent decades. On the one hand, it enriches SLA [29,81], however, on the other hand it also results in fragmented evidence due to the lack of a consensus on index and methodologies [82], leaving policy makers to employ SLA grounded in their own understandings [80]. Although “one size fits all” SLA [80] is neither possible nor appropriate, it will be hugely beneficial to explore a more universal SLA under specific contexts.

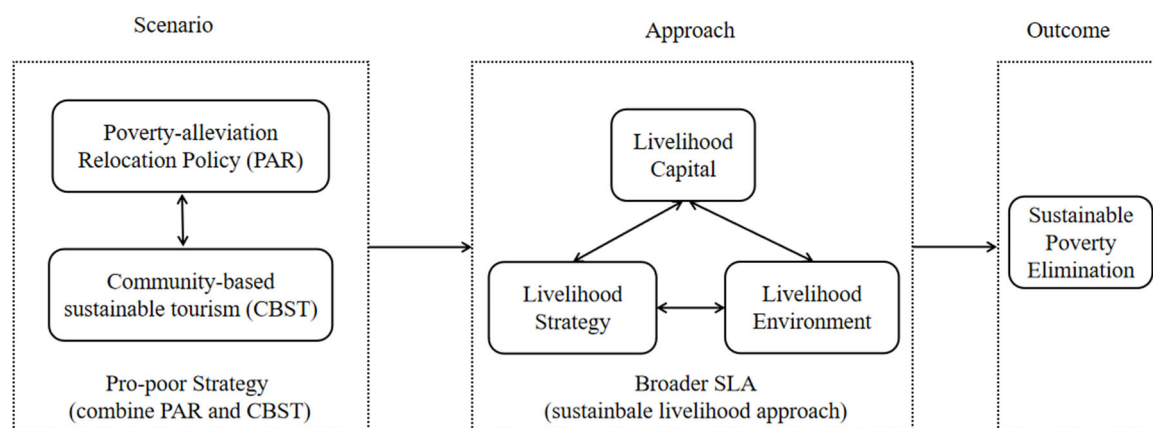


Figure 1. The conceptual framework of poverty-alleviation-relocated tourism communities.

3.2. Construction of Livelihood-Sustainability Indicators

3.2.1. Indicator Selection and Refinement

Based on the aforementioned findings and theories, the index system for evaluating the livelihood sustainability of PAR residents is defined in this section. Under the livelihood capital, the cultural asset is added to the classic livelihood assets because tourism-led relocated communities are usually ethnic minorities with unique cultural attributes to develop tourism. Based on common practice, livelihood strategies cover income dependence ranging from agricultural resources, tourism, and out-of-home work to government dividends. The livelihood environment includes the vulnerability context, organizational structure, and institutional processes. The detailed index system is shown in Figure 1.

3.2.2. Livelihood-Sustainability Indicators

To elaborate on the 13 secondary indicators within three dimensions in Table 1, the 33 tertiary indicators, along with definition and impact direction, are shown in Table 2.

Table 1. Evaluation index system of sustainable livelihood in relocated tourism communities.

Primary Indicator	Secondary Indicator	Tertiary Indicator	References
Livelihood Capital	Financial capital	Per-capita household income, sources of income, access to loans	[51,73,79,81,83]
	Physical capital	Housing area, toilet condition, household fixed assets	
	Human capital	Number of household workers, health and education of workers, skills-training opportunities	
	Social capital	Degree of social network support, social connectedness, participation in social or farming cooperative organizations	
	Natural capital	Area and quality of biological production (arable and forested land, fish ponds), household location	
	Cultural capital	Mastery of traditional cultural skills, the transformation of cultural tourism products, willingness to pass on culture	
Livelihood Strategy	Agricultural resource dependence	Share of income from agriculture	[84]
	Tourism-resource dependence	Share of income from tourism	
	Work capacity dependence	Share of income from outside and local work	
	Policy and institutional dependence	Share of income from government subsidies	
Livelihood Environment	Vulnerability context	Disaster/shock frequency (including the COVID-19 pandemic), seasonal tourism fluctuations, social factors	[51,85]
	Organizational structure	Government, tourism companies, communities	[86]
	Institutional process	Policies and laws, cultural practices, village rules, and regulations	

Table 2. The definitions, assigned values, and directions of tertiary indicators.

Secondary Indicator	Tertiary Indicator	Symbol	Definition of Indicator and Assigned Value	Direction of Effect
Human capital	Number of household workers	L1	Adult labor force in the household aged 18–60 (persons)	+
	Workers' health	L2	Proportion of healthy persons in the household (%)	+
	Workers' education level	L3	Total years of labor-force education/number of persons in the labor force (a/person)	+
	Skills-training opportunities	L4	Yes = 1, No = 0	+

Natural capital	Biological production area	N1	Crop-cultivation area (mu)	+
	Quality of biological production	N2	Very poor = 1, poor = 2, fair = 3, good = 4, very good = 5	+
	Household location	N3	Distance to core attractions or major traffic routes within 10 m = 550 m = 4200 m = 3500 m = 2500 m and above = 1	+
Agricultural resource dependence	Housing area per capita	M1	Area of household house/family size (m ² /person)	+
	Household fixed assets	M2	Fixed assets (other than buildings) adding up to ¥10,000 in cash = 1, ¥10,000–¥50,000 = 2, ¥50,000–¥100,000 = 3, ¥100,000–¥200,000 = 4, ¥200,000 or more = 5	+
	Toilet condition	M3	Modern separate toilet = 1, dry toilet = 0	+
Financial capital	Annual household income	F1	0–¥50,000 = 1, ¥50,000–¥100,000 = 2, ¥100,000–¥150,000 = 3, ¥150,000–¥200,000 = 4, ¥200,000 or more = 5	+
	Sources of income	F2	Number of sources of income	+
	Access to loan opportunities	F3	Access to lending (number of sources)	+
Social capital	Participation in social or farming cooperative organizations	S1	Yes = 1, No = 0	+
	Social connectedness	S2	Friend or relative works in a government agency or enterprise = 1, none = 0	+
	Social network support	S3	Social network relationships very poor = 1, poor = 2, fair = 3, good = 4, very good = 5	+
Cultural capital	Mastery of traditional cultural skills	C1	Very poor = 1, poor = 2, fair = 3, good = 4, very good = 5	+
	Transformation of cultural tourism products	C2	Transform culture into a tourism product = 1, no = 0	+
	Willingness to pass on culture	C3	Very reluctant = 1, reluctant = 2, fair = 3, willing = 4, very willing = 5	+
Agricultural resource dependence	Share of agricultural income	A1	Agricultural income/gross household income (%)	–
Tourism resource dependence	Share of income from tourism	T1	Tourism income/gross household income (%)	+
Work capacity dependence	Percentage of income from work outside the home	W1	Income from work outside the home / gross household income (%)	+
	Percentage of income from local work	W2	Income from local work/gross household income (%)	+
Subsidy dependence	Share of policy-subsidized income	P1	Policy-subsidized income/gross household income (%)	–
Vulnerability context	Disaster/shock frequency	B1	Resistance to natural disasters: very weak = 1, weak = 2, fair = 3, strong = 4, very strong = 5	+
	Seasonal fluctuations in tourism	B2	Resistance to seasonal fluctuations in tourism: very weak = 1, weak = 2, fair = 3, strong = 4, very strong = 5	+
	Social factors	B3	Resistance to social factors: very weak = 1, weak = 2, fair = 3, strong = 4, very strong = 5	+

Organizational structure	Government	J1	Satisfaction with government: very dissatisfied = 1, dissatisfied = 2, fair = 3, satisfied = 4, very satisfied = 5	+
	Travel Company	J2	Satisfaction with tourism businesses: Very dissatisfied = 1, dissatisfied = 2, fair = 3, satisfied = 4, very satisfied = 5	+
	Community	J3	Satisfaction with community: very dissatisfied = 1, dissatisfied = 2, fair = 3, satisfied = 4, very satisfied = 5	+
System process	Policy and law	I1	Strength of policy and legal support for livelihoods: very weak = 1, weak = 2, fair = 3, strong = 4, very strong = 5	+
	Cultural practices	I2	Strength of cultural practices to support livelihoods: very weak = 1, weak = 2, fair = 3, strong = 4, very strong = 5	+
	Village rules and regulations	I3	Strength of village rules to support livelihoods: very weak = 1, weak = 2, fair = 3, strong = 4, very strong = 5	+

Note. The signs “+” and “−” refer to a positive and negative relationship between the indicator and dependent variable (livelihood sustainability), respectively.

Generally, livelihood-capital abundance is positively correlated with the ability to resist external threats and pressures and choose livelihood activities freely. Thus, the greater the livelihood capital, the more sustainable the livelihood [47]. Research has shown that community residents’ well-being (i.e., income) is significantly related to the rate of return of the selected livelihood strategies. Overall livelihood levels move upward when people choose one or more higher-return livelihood strategies and downward when they choose lower-return strategies [87]. For ecologically fragile mountainous areas such as Rongshui County, livelihood strategies are highly dependent on agricultural resources and constrained by the phenological environment. Increasing population pressure degraded arable and forested land, leading to lower livelihood sustainability of farm households. Thus, dependence on agricultural resources negatively impacts the livelihood sustainability of residents in relocated communities [88]. The livelihood environment refers to various external factors that influence residents’ livelihoods. The vulnerability context is the objective external environment, which affects the sustainability of farmers’ livelihoods. Despite varying slightly by study site, it affects the availability and control of livelihood capital [89] and is positively related to livelihood sustainability.

3.3. Data Sources and Questionnaires

3.3.1. Data Collection

Primary data (e.g., basic information about relocated households and their livelihood assets, the effectiveness of their chosen livelihood-strategy mixes, and the advantages and disadvantages of their livelihood environments) were obtained via questionnaires. Secondary data were drawn from official statistics from China’s national Poverty Alleviation Office and local governments. These included statistics on tourism resources and flows, resettlement planning, and the employment of relocated households. Before the field survey, we obtained lists of economic migrants from the local government and community managers. We collected critical household-based statistics, including household size, age, health status, education level, employment status, and income status.

3.3.2. Sites and Implementation of the Questionnaire Survey

(1) Overview of survey sites

The details of the three study sites are as follows.

Mengwu Miao is a scenic tourism destination with 36 relocated households. In 2017, the stilted buildings in previous sites were dismantled, numbered, packed, and shipped to this scenic tourism destination, where they were thoroughly restored (see Figure 2). The original owners were allowed to continue living in their restored homes. Later, a few replica buildings, incorporating cultural elements of ethnic Miao, were built alongside the old houses to form a particular tourism neighborhood featuring homestay accommodation, unique dishes, and ethnic handicrafts (see Figure 3). At present, resettled residents work in scenic spots during the daytime and live in the restored stilted buildings at night. Living in their workplace or working near home means that they fulfill their desire for employment at home. In addition, tourism development brings an increase in visitors to Mengmu Miao Village, driving the growth of visits to circumjacent rural and agricultural tourism sites and farmhouses. According to relevant statistical data, after Mengmu Miao Village was put to use, the tourist flow of farmhouses within a radius of 2 km increased significantly, from 1000 per day to more than 4500. As a representative of the innovative combination of PAR and tourism development, Mengmu Miao Village allows for sharing the fruits of tourism development among surrounding villagers and resettled residents.



Figure 2. Restored stilted building in the Mengwu Miao Scenic Spot.



Figure 3. Culture Street in the Mengwu Miao Scenic Spot.

Miaomei Homeland, located in the west of Rongshui County within the scenic areas of Shuanglonggou and Mengwu Miao, was established in 2019; it houses 4793 relocated people in 1225 households. Tourism employment opportunities are provided to left-behind women and unfit/older laborers from over 400 relocated households, including workshops in rattan-chair weaving, garment marking, community welfare, and tour-guiding (see Figure 4). Younger laborers are sent out by the community employment agency or given flexible local jobs locally. Miaomei Homeland community is only about 500 m away from the Shuanglonggou Scenic Spot and is the only access to enter the spot. To fully utilize its geographical advantages, the community has established the “Miashan Revitalizing” cooperative of agricultural products and created its own brand in workshops and supermarkets. By selling products to tourists, resettled residents enjoy stable

employment and income. Moreover, their shops also provide a platform for agricultural products produced by other cooperatives and communities within the county.



Figure 4. Woven rattan chairs sold as tourism commodities in Miaomei Homeland.

Miaojia is located at the southwest edge of Rongshui County between the national scenic area Laojun Cave and Laozi Mountain. Construction began in 2016, and the town has successfully resettled 6711 people in 1605 households; 10 ethnic-minority groups are represented, including 43.77% Miao people. In 2020, it won the title of “Beautiful Relocation Area of the 13th Five-Year Plan” and the second batch of National Unity Demonstration Area in Liuzhou City. At the beginning of the construction, the government, relying on cultural resources and geographical advantages, developed commercial blocks with an ethnic theme to attract tourists to Laojun Cave Scenic spot with the help of local companies. Local women were trained to produce a series of Miao embroidery products and sell them as tourism commodities (see Figure 5). Thus, it deepens the participation of resettled residents in tourism-related industries and gives full play to the efficient function of poverty alleviation through tourism.



Figure 5. Poverty alleviation workshop in Miaojia Town.

(2) Survey implementation

The investigation was conducted on 11–18 October 2021. Although Mengwu Miao was expecting 100 relocated households, only 36 had arrived by the fieldwork period. Additionally, 91 households from Miaomei and 75 households from Miaojia were randomly selected for the survey. Overall, 202 questionnaires were returned; eight were excluded as incomplete or sent in by non-relocated households, leaving 194 valid household questionnaires covering a population of 800 people. The effective rate was 96.04%.

3.4. Evaluation Methods and the Obstacle Factors Diagnostic Model

To identify indicators and assess their effect on SLA, the multinomial logistic regression model is widely used to explore mechanisms that underpin livelihood sustainability levels [90,91]. Moreover, qualitative analysis and spatial statistics [17,24] can be seen in the literature as well. Another literature stream looks at SLA from an obstructive perspective, known as the obstacle factors diagnosis. This method, derived from experimental science, was first introduced to a social-science context by [92] and has gained popularity

in research on carbon-emission reductions [93], tourism ecological safety [47], urban ecological safety [86], sustainable agricultural development [94], and the development of ecological and economic systems [23]. Recently, the approach has been used to classify and diagnose livelihood obstacles that impact farmers lifted out of poverty with low livelihood sustainability [84]. To the best of our knowledge, the obstacle factors diagnosis method has not been employed in a relocated tourism community.

3.4.1. Evaluating Livelihood Sustainability

(1) Numerical normalization

The indicators' directions of effect and the dimensionless raw data were normalized using the min-max normalization technique, as shown in the following equations:

$$\text{positive indicators: } Z = \frac{X - X_{\min}}{X_{\max} - X_{\min}} \quad (1)$$

$$\text{negative indicators: } Z = \frac{X_{\max} - X}{X_{\max} - X_{\min}} \quad (2)$$

In Equations (1) and (2), Z is the processed normalized value, and X is the raw, unprocessed value. The normalized Z value falls between 0 and 1. When the value is closer to 1, one of three conditions applies: livelihood capital is more abundant; the livelihood strategy is more efficient; or the livelihood environment is better. The reverse is true when the value is closer to 0.

(2) Determining the weight of indicators

Among various methods used to determine indicator weights, the entropy-weighting method (EWM) is widely adopted for its objectivity. It allocates weights to indicators by calculating their coefficients of variation, thus evaluating multiple indicators comprehensively. Here, EWM was used to determine the indicator weights in the livelihood sustainability evaluation index system for PAR farm households in tourism communities. The calculation steps are as follows:

First, find the share P_{ij} of sample i of indicator j ,

$$P_{ij} = \frac{Z_{ij}}{\sum_{i=1}^s Z_{ij}} \quad (3)$$

Subsequently, find the coefficient of variation G_j of indicator j ,

$$G_j = 1 - e_j = 1 - \frac{-\sum P_{ij} \ln(P_{ij})}{\ln(n)} \quad (4)$$

where e_j denotes the entropy value of indicator j and $e_j \geq 0$.

Finally, calculate the weight W_j of the j th indicator,

$$W_j = \frac{G_j}{\sum_{j=1}^n G_j} \quad (5)$$

(3) Overall index calculation

The weighted total normalized values provide the overall value of livelihood sustainability for the i th sample. The equation is as follows:

$$A_i = \sum_{j=1}^{j=n} (W_j \cdot Z_{ij}) \quad (i = 1, 2, 3, \dots, s) \quad (6)$$

3.4.2. Method for Rating Livelihood Sustainability

This study uses the K-means clustering (or fast-clustering) algorithm because it does not need to store the distance matrix or primary data during the computation. For better clustering results in large datasets, the number of iterations of K-means clustering can be raised until the data points in each cluster no longer change. As the K-means clustering

algorithm is used to rate and label unclassified samples, we have used it to rate the iterative clustering results of the indicator values of livelihood capital, strategy, and environment and the overall index of livelihood sustainability.

3.4.3. Diagnosing Livelihood Obstacle Factors

Apart from the comprehensive measurement of livelihood sustainability levels at the case sites, the existing problems need to be identified. The obstacle factors diagnosis model [47,86] was used to measure and analyze the factors and degrees of livelihood obstacles faced by relocated households. Thus, we introduced the factor contribution degree T_j (the degree of contribution or weight W_j of a single indicator to a target indicator); the indicator deviation degree E_j (the difference between a single indicator and its normalized mean Z_j); and the obstacle degree Q_j (a single indicator's impact on livelihood sustainability) into the following equations.

$$T_j = W_j \quad (7)$$

$$E_j = 1 - Z_j \quad (8)$$

$$Q_j = \frac{T_j \times E_j}{\sum(T_j \times E_j)} \times 100 \quad (9)$$

4. Results and Discussion

4.1. Reliability and Validity

Using SPSS 23.0, we tested the reliability and validity of the questionnaire scales using a reliability test and exploratory factor analysis, respectively.

The reliability analysis primarily checked the reliability and stability of the scales, expressed by Cronbach's α . The value of this coefficient ranges between 0 and 1; the closer it is to 1, the higher the reliability of the questionnaire. When it falls below 0.6, the questionnaire must be adjusted. According to Table 3, the overall Cronbach's α is 0.799, indicating that the questionnaire has good internal consistency and high reliability. The KMO coefficient takes a value between 0 and 1; the closer it is to 1, the better the structural validity of the scale. The scale is unsuitable for factor analysis if the coefficient is less than 0.5. The scale has good structural validity when Bartlett's significance is less than 0.05. As Table 3 shows, the overall KMO value of the scale is 0.837, and the significance value of Bartlett's sphericity is less than 0.05, proving that the scale has good structural validity.

Table 3. Questionnaire reliability and validity analysis.

		Cronbach's Alpha	Cronbach's Alpha Based on Normalized Terms	Number of Questions	Number of Scale Questions
Reliability	Overall questionnaire	0.799	0.801	37	23
	Livelihood capital	0.829	0.823	19	9
	Livelihood strategy	0.758	0.764	5	5
	Livelihood environment	0.795	0.796	9	9
Validity	KMO sampling adequacy		0.837		
	Bartlett's test of sphericity	Chi-Square approximation		2573.634	
		Degrees of freedom		142	
		Significance		0.000	

4.2. Demographic Analysis

As Table 4 shows, 40.72% of respondents were male, and almost 60% were female. Overall, 58 respondents were aged 26–40 years, and 83 (42.78%) were 41–60 years old, suggesting that the sample was slightly skewed toward females and older people. Most households had 3–6 members; these accounted for 93.82% of all respondents. Households with 2–4 workers accounted for 87.63% of the sample, although 20 respondents (10.31%) reported a household labor force of one person. Approximately 34.54% of households reported an annual household income of less than ¥50,000, close to poverty, while 60% of households had ¥50,000 to ¥150,000, indicating relatively low household income of community residents. The main sources of household income were as follows: 68 (35.05%) of households were tourism-led; 0 were agriculture-led; 18.56% worked outside the community; 77 (39.69%) worked locally; and 13 (6.7%) were government-subsidized. Thus, nearly 40% of relocated households had adopted tourism-related industries as their main livelihood strategy. Most of them were tourism-exclusive. For example, the 36 relocated households in Mengwu Miao rely primarily on folk-culture performances or work as ticket checkers, cleaning staff, and tour bus drivers in scenic tourism destinations. This shows that tourism development in government-led relocation communities can not only reduce poverty, but can also improve the sustainability of livelihoods of residents in such communities, which plays a significant role in preventing the return of poverty.

Table 4. Descriptive statistics for the respondents' demographics.

Statistical Variable	Sample Distribution	Number of Samples	Individual Percentage (%)	Cumulative Percentage (%)
Is this a relocated household?	No	0	0	0
	Yes	194	100	100
Sex	Male	79	40.72	40.72
	Female	115	59.28	100
Age	Under 26 years	19	9.79	9.79
	26–40 years	58	29.90	39.69
	41–60 years	83	42.78	82.47
	Over 60 years	34	17.53	100
Household population (persons/household)	1	3	1.55	1.55
	2	3	1.55	3.09
	3	21	10.82	13.92
	4	76	39.18	53.09
	5	51	26.29	79.38
	6	34	17.53	96.91
	7	6	3.09	100
Number of household workers aged 18–60 (persons/household)	0	1	0.52	0.52
	1	20	10.31	10.82
	2	87	44.85	55.67
	3	55	28.35	84.02
	4	28	14.43	98.45
	5	2	1.03	99.48
Annual household income (RMB 10,000)	6	1	0.52	100
	Less than 5	67	34.54	34.54
	5–10	83	42.78	77.32
	10–15	34	17.53	94.85
	15–20	7	3.61	98.45
	More than 20	3	1.55	100

Main sources of household income	Tourism-led	68	35.05	35.05
	Agriculture-led	0	0	35.05
	Outside work	36	18.56	53.61
	Local work	77	39.69	93.30
	Government-subsidized	13	6.70	100

4.3. Assessment of Livelihood Sustainability of PAR Residents in Tourism Communities

4.3.1. Determining the weights of livelihood-sustainability evaluation indicators

After the dimensionless, indicator weights were determined using EWM, as in Equation (5). It should be noted that the indicator toilet condition is not supposed to make a difference to sustainable livelihood since all new homes were equipped with modern flushing toilets. Therefore, this indicator is assigned a zero weight and excluded from the entropy-value calculation. Table 5 presents the indicator weights and rankings.

Table 5. Weights of livelihood-sustainability evaluation indicators.

Primary Indicator	Secondary Indicator	Tertiary Indicator	Weight	Ranking
Livelihood capital	Human capital	Number of household workers	0.1185	2
		Workers' health	0.0419	9
		Workers' education level	0.0926	4
		Skills-training opportunities	0.0190	12
	Natural capital	Biological production area	0.0019	30
		Quality of biological production	0.0015	31
		Household location	0.0046	24
	Physical capital	Housing area per capita	0.0012	32
		Household fixed assets	0.0033	26
		Toilet condition	0.0000	33
	Financial capital	Annual household income	0.1294	1
		Sources of income	0.0357	10
		Access to loan opportunities	0.0159	14
	Social capital	Participation in social or farming co-operative organizations	0.0115	16
		Social connectedness	0.0741	6
		Social network support	0.0079	21
	Cultural capital	Mastery of traditional skills	0.0252	11
		Transformation of cultural tourism products	0.0638	7
		Willingness to pass on culture	0.0174	13
Livelihood strategy	Agricultural resource dependence	Share of agricultural income	0.0037	25
	Tourism resource dependence	Share of income from tourism	0.1173	3
	Work capacity dependence	Share of income from outside work	0.0845	5
		Share of income from local work	0.0552	8
	Subsidy dependence	Share of policy-subsidized income	0.0109	17
Livelihood environment	Vulnerability context	Disaster/shock frequency	0.0026	29
		Seasonal fluctuations in tourism	0.0128	15
		Social factors	0.0092	20
	Organizational structure	Government	0.0058	23
		Travel Company	0.0098	19
		Community	0.0031	27

Institutional process	Policy and law	0.0103	18
	Cultural practices	0.0064	22
	Village rules and regulations	0.0030	28

4.3.2. Rating the Levels of Livelihood Sustainability

Based on the results of the K-means clustering iterative calculation, three indicators and the overall value of sustainable livelihood are divided into three levels, as shown in Table 6.

Table 6. Ratings for livelihood-sustainability indicator levels.

Indicators	Level 1		Level 2		Level 3	
	Label	Value Interval	Label	Value Interval	Label	Value Interval
Livelihood capital	Abundant	>0.3495	Median	0.2762~0.3495	Scarce	<0.2762
Livelihood strategy	Efficient	>0.1218	Median	0.1218~0.0973	Inefficient	<0.0973
Livelihood environment	Good	>0.0496	Median	0.0274~0.0496	Bad	<0.0274
Overall livelihood sustainability	High	>0.5127	Median	0.4022~0.5127	Low	<0.4022

4.3.3. Evaluation Analysis of Livelihood-Sustainability

(1) Overall analysis of indicator measurement results

As Table 7 shows, overall livelihood sustainability was 0.4670, a median level indicated by Table 6. In all, the primary indicators were ranked as livelihood capital > livelihood strategy > livelihood environment. The sequence of secondary indicators is shown in Figure 6.

Firstly, the weighted value of the livelihood capital is 0.3105, indicating a median level, among which human capital (0.1281) is the most important part of livelihood capital. However, the low value of education level (0.0295) and training opportunities (0.0113) demonstrate low literacy levels and human-capital skills among resettled residents which need improvement. The weighted financial capital is 0.0815, second only to human capital in its contribution to livelihood capital. Under financial capital, annual household income ranks second among all livelihood-capital indicators, proving that relocating to tourism areas boosts household income and expands household-income channels, making livelihoods more diversified. The weighted value of cultural capital is 0.0590, making the third-largest contribution to livelihood capital, indicating the importance of cultural capital for ethnic households working in tourism. The remaining secondary indicators, such as social, natural, and physical capital, have relatively low weighted values, possibly because community residents by centralized resettlement are from remote mountainous areas. Their differences may create awkward neighborhood relationships, estrangement, and adaptation problems. Weighted physical capital makes the most negligible contribution to livelihood capital due to the fact that housing is allocated uniformly by the government based on household size. As such, their physical capital is virtually fixed. This suggests that relocation communities are entirely led by the Chinese government, which is quite different from the way ecological migration occurs in other parts of the world.

Table 7. Measurement results for the livelihood-sustainability indicators.

Primary Indicator	Secondary Indicator	Tertiary Indicator	Weight	Normalized Mean	Weighted Value of Tertiary Indicators	Weighted Value of Secondary Indicators	Weighted Value of Primary Indicators
Livelihood capital	Human capital	Number of household workers	0.1185	0.4565	0.0541	0.1281	0.3105
		Workers' health	0.0419	0.7876	0.0330		
		Workers' education level	0.0926	0.3186	0.0295		
	Natural capital	Skills-training opportunities	0.0190	0.5947	0.0113	0.0047	
		Biological production area	0.0019	0.0285	0.0001		
		Quality of biological production	0.0015	0.3749	0.0001		
	Physical capital	Household location	0.0046	0.8913	0.0041	0.0018	
		Housing area per capita	0.0012	0.5361	0.0006		
		Household fixed assets	0.0033	0.3636	0.0012		
	Financial capital	Toilet condition	0	0	0	0.0815	
		Annual household income	0.1294	0.4149	0.0537		
		Sources of income	0.0357	0.4734	0.0169		
	Social capital	Access to loan opportunities	0.0159	0.6855	0.0109	0.0354	
		Participation in social or farming cooperative organizations	0.0115	0.8956	0.0103		
		Social relevance	0.0741	0.2847	0.0211		
	Cultural capital	Social network support	0.0079	0.5190	0.0041	0.0590	
Mastery of traditional skills		0.0252	0.738	0.0186			
Transformation of cultural-tourism products		0.0638	0.397	0.0253			
Livelihood strategy	Agricultural resource dependence	Willingness to pass on culture	0.0174	0.869	0.0151	0.1164	
		Share of agricultural income	0.0037	0.9745	0.0036		
	Tourism resource dependence	Share of income from tourism	0.1173	0.3817	0.0448		
		Share of out-of-home working	0.0845	0.3389	0.0286		
	Work capacity dependence	Share of income from local work	0.0552	0.5294	0.0292		
Livelihood environment	Subsidy dependence	Share of policy-subsidized income	0.0109	0.9278	0.0101	0.0101	
	Vulnerability context	Disaster/ shock frequency	0.0026	0.8794	0.0023	0.0139	
		Seasonal fluctuations in tourism	0.0128	0.6253	0.0080		
		Social factors	0.0092	0.3947	0.0036		
	Organizational structure	Government	0.0058	0.9038	0.0052	0.0126	
		Travel Company	0.0098	0.4752	0.0047		
		Community	0.0031	0.8841	0.0027		
	Institutional process	Policy and law	0.0103	0.8492	0.0087	0.0136	
Cultural practices		0.0064	0.4618	0.0030			
		Village rules and regulations	0.0030	0.6235	0.0019		
Overall							0.4670

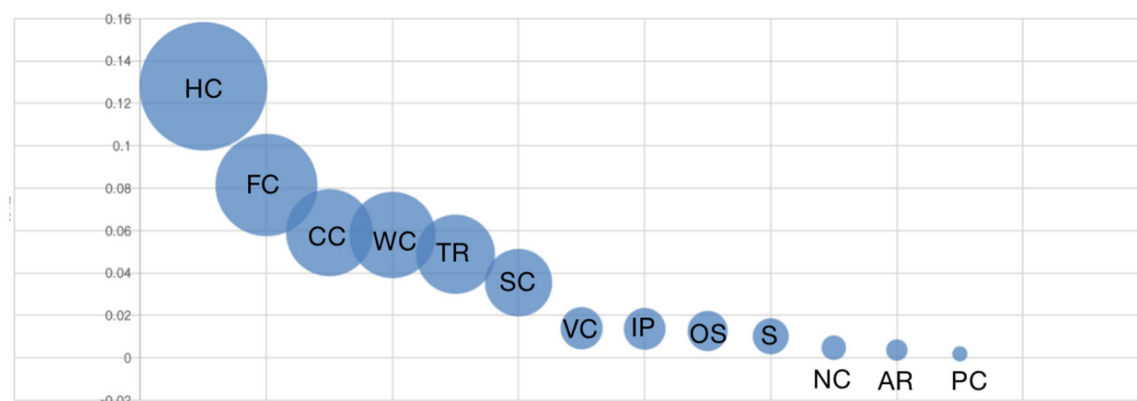


Figure 6. The sequence of 13 secondary indicators in weighted value. Note: human capital (HC); financial capital (FC); cultural capital (CC); work capacity dependence (WC); tourism resource dependence (TR); social capital (SC); vulnerability context (VC); institutional process (IP); organizational structure (OS); subsidy dependence (S); natural capital (NC); agricultural resource dependence (AR); physical capital (PC).

Next, livelihood strategy has a weighted value of 0.1164—at the median level in Table 6. Labor capacity dependence and tourism resource dependence play a crucial role in livelihood strategy effectiveness, while subsidy dependence and agricultural resource dependence contribute less. Among the five indicators, tourism income ranks first, followed by local-work income and outside-work income. Non-agricultural livelihood strategies are far more efficient in driving the well-being of relocated households than agricultural work or government subsidies. The normalized mean of 0.3817 for tourism income shows that tourism-involvement levels remain low, apart from 36 relocated households in Mengwu Miao who are fully engaging in the tourism business. The number of those fully engaging in the tourism business is much lower in Miaomei and Miaojia.

Finally, the weighted value of the livelihood environment is 0.0401, which is at the upper-median level, according to Table 6. This shows that the livelihood environment of residents has improved significantly overall since their relocation. The vulnerability context, institutional process, and organizational structure contribute at 0.0139, 0.0136, and 0.0126 levels, respectively, to the livelihood environment—they are roughly on par. This finding suggests that these PAR samples have a solid overall capacity to resist the seasonal or cyclical impact of tourism. In fact, their natural environment has improved fundamentally, significantly reducing suffering from various natural disasters. Additionally, the PAR households in Rongshui County tourism communities have enjoyed substantial government support such as medical care and education. However, cultural practices make only a tiny contribution to the livelihood environment, indicating that they do not transform traditional skills into livelihood capital. PAR residents in Rongshui County tourism communities are highly satisfied with the government and community management and service levels but less satisfied with the tourism-location management and service levels. As few relocated households in two communities earn a living from tourism, they may not care about the management of scenic locations or be able to rate them fairly.

(2) Heterogeneity of livelihood sustainability

To compare the heterogeneity of relocated households in different regions and with different livelihood modes, we took measurements for different study sites and livelihood modes based on the weights in Table 6. As Table 8 shows, different types of relocated households have different levels of livelihood sustainability. The ranking in terms of survey sites is Mengwu Miao > Miaojia > Miaomei. Mengwu Miao is a village with high-level livelihood sustainability, while Miaojia and Miaomei are both median-level sites. In terms of livelihood modes, the order is as follows: tourism-led > outside-work-led > local-work-led > government subsidy-led. Accordingly, the livelihood sustainability of tourism-led

relocated households is at the high level, and that of outside-work-led households is at the same level, with a small margin. Local-work-led households are ranked at the median level, and government subsidy-led households are at the low level.

A calculation using independent samples can reveal the heterogeneous distribution of various levels of livelihood sustainability. Taking all samples together, 67 PAR households (34.54%) have high-level livelihood sustainability, 90 (46.39%) have median-level livelihood sustainability, and 37 (19.07%) have low-level livelihood sustainability. Regionally, Mengwu Miao has 20 high-level PAR households and 16 for the median level. Considered together, Miaomei and Miaojia have 47 high-level and 74 median-level PAR households. In terms of livelihood modes, all 13 government-subsidy-led and many local-work-led PAR households are low-ranking, while most outside-work- and tourism-led households are at the high or median level. Thus, tourism-led Mengwu Miao has excellent livelihood sustainability. Miaomei and Miaojia, which have many migrant workers, can maintain a decent level of livelihood sustainability, even in the face of external shocks and seasonal impacts.

Table 8. Heterogeneity analysis of livelihood-sustainability levels.

By sample area	Indicators	Mengwu Miao			Miaomei			Miaojia					
	Livelihood-capital indicator value	0.3589			0.2916			0.3023					
	Livelihood-strategy indicator value	0.1306			0.1199			0.1186					
	Livelihood-environment indicator value	0.0439			0.0400			0.0391					
	Overall value of livelihood sustainability	0.5334			0.4515			0.4600					
	Livelihood-sustainability level and share * (%)	High	Median	Low	High	Median	Low	High	Median	Low			
	10.31	8.25	0	13.92	19.59	10.82	10.31	18.56	8.25				
By livelihood mode	Indicators	Tourism-led			Outside work-led			Local-work-led			Government subsidy-led		
	Livelihood capital indicator value	0.3647			0.3513			0.3016			0.2549		
	Livelihood strategy indicator value	0.1334			0.1225			0.1159			0.0051		
	Livelihood environment indicator value	0.0414			0.0396			0.0399			0.0400		
	Overall value of livelihood sustainability	0.5395			0.5134			0.4574			0.3000		
	Livelihood-sustainability level and share* (%)	High	Median	Low	High	Median	Low	High	Median	Low	High	Median	Low
	18.56	15.46	1.03	7.22	10.82	0.52	8.79	20.10	10.82	0	0	6.7	

Note: * means the sample households with high, median, and low sustainability levels as a percentage of the total, respectively, in %.

4.4. Livelihood-Sustainability Obstacles Facing PAR Residents in Tourism Communities

To further diagnose why the livelihood sustainability of relocated residents in tourism communities is at the median level, the obstacle factors diagnostic model presented in Equations (7)–(9) is used to measure the obstacle degrees for each indicator and deter-

mine the impact of obstacle factors. Owing to space limitations, we present only the obstacle degrees of secondary and tertiary indicators, ignoring other results, such as factor contribution (T_i), normalized mean (Z_i), and indicator deviation (E_i).

4.4.1. Analysis of the Obstacle Factors of Secondary Indicators

The obstacle degrees of secondary indicators (see Table 9) are as follows. For relocated households with high-level livelihood sustainability (67 households), five indicators have obstacle degrees beyond 10%: human capital, financial capital, labor capacity dependence, social capital, and tourism resource dependence. The impacts are minor for natural and physical capital, subsidy dependence, and agricultural resource dependence, with obstacle degrees under 1%. For relocated households with median-level livelihood sustainability (90 households), six indicators have obstacle degrees over 10%: human capital, financial capital, tourism resource dependence, labor capacity dependence, cultural capital, and social capital. For relocated households with low levels of livelihood sustainability (37 households), four indicators have obstacle degrees greater than 10%: human capital, financial capital, labor capacity dependence, and tourism resource dependence.

To conclude, these three levels share obstacle factors of human and financial capital, tourism resource dependence, and labor capacity dependence. Human and financial capital rank first and second, respectively, while the remaining factors vary across different levels with different obstacle degrees. However, these represent the four most significant obstacle factors, impacting the livelihood sustainability of relocated households at all levels. Of these, the normalized mean values of “number of household workers” and “workers’ education level” under human capital fall below 0.5. The same is true for the tertiary indicators of financial capital: annual household income and household-income sources. This implies that more attention should be focused on the gaps in these aspects of livelihood sustainability to prevent community residents from returning to poverty. Simultaneously, these results further confirm that overall livelihood sustainability remains at the median level.

Table 9. Measuring the obstacle degrees of secondary indicators.

Primary Indicator	Secondary Indicator	High-Level Obstacle Degree (Q_i)/%	Median-Level Obstacle Degree (Q_i)/%	Low-Level Obstacle Degree (Q_i)/%
Livelihood capital	Human capital	24.57	28.14	27.19
	Natural capital	0.86	0.48	0.49
	Physical capital	0.57	0.52	0.437
	Financial capital	20.72	17.46	18.34
	Social capital	12.11	10.90	8.83
	Cultural capital	6.43	11.74	9.97
Livelihood strategy	Agricultural resource dependence	0.01	0.01	0.01
	Tourism resource dependence	10.28	13.86	15.51
	Work capacity dependence	18.84	12.40	15.59
Livelihood environment	Subsidy dependence	0.02	0.02	0.85
	Vulnerability context	2.88	2.06	1.32
	Organizational structure	1.36	1.22	0.85
	Institutional process	1.33	1.18	1.04

4.4.2. Obstacle Factors of Tertiary Indicators for Relocated Households at Different Levels

With 33 indicators in the whole tier, we have analyzed the top 15 obstacle factors from the full list of obstacle degrees (see Table 10) owing to space constraints. According to our comparative analysis, in relocated households with high-level livelihood sustainability, nine obstacle factors relate to livelihood capital, three to livelihood strategy, and

three to livelihood environment. In relocated households with median-level livelihood sustainability, ten obstacle factors relate to livelihood capital, three to livelihood strategy, and two to the livelihood environment. In households with low-level livelihood sustainability, the results are 10, 4, and 1, respectively. Thus, the obstacles facing the study population are both multidimensional and complex. The five factors with the most obstacle degrees are shared by all three groups: annual household income, number of household workers, and levels of education. To strengthen the livelihood sustainability of relocated households, the emphasis should be on implementing concrete income-generation measures and optimizing human capital.

Alongside the three common obstacle factors, Table 10 also presents three obstacle factors with heterogeneous effects on different levels of livelihood sustainability.

(1) Unlike households at other levels, relocated households with high-level livelihood sustainability face high-degree obstacle factors, including social connectedness, sources of income, seasonal fluctuations in tourism, and social network support. This is because most relocated households with high-level sustainable livelihoods are tourism- or outside-work-led; they depend on the main business for income. This single-income structure makes them susceptible to the seasonal and cyclical fluctuations of tourism. Such households may have no friends or relatives working in scenic tourism destinations or government departments; their relationships with other residents in the tourism area or community may need to be more harmonious.

(2) Relocated households with a median level of livelihood sustainability face significant obstacles associated with access to credit, the income share they receive from tourism, and their transformation of cultural-tourism products and mastery of traditional cultural skills. Such households currently rely on local or migrant work as their main sources of income, with relatively little involvement with tourism and a low income. Some residents may have rusty traditional cultural skills compared with members of higher-level households. Alternatively, their skills may be more suitable for self-entertainment than for creating tangible economic tourism products. The questionnaire responses suggest that limited access to loans or low awareness may account partially for their low skill-improvement rate.

(3) For households with low livelihood sustainability, major obstacle factors include the proportion of income earned from tourism, the proportion of work done outside the community, workers' health, and opportunities for skills training. This study has found that most of the 37 relocated households in this group have limited work capacity (e.g., sick or elderly people), lack a significant livelihood, and are subsidized by the government. Some part-time workers do low-end piecework jobs in poverty alleviation workshops or serve in community-welfare roles. For physical and psychological reasons, they cannot work outside and have few other options. Indeed, they face considerable future obstacles and should be a key target of poverty-prevention initiatives.

Table 10. Obstacle factors and degrees of livelihood sustainability at different levels.

High Sustainability		Median Sustainability		Low Sustainability	
Obstacle Factor	Degree of Obstacle/%	Obstacle Factor	Degree of Obstacle/%	Obstacle Factor	Degree of Obstacle/%
Annual household income	14.83	Annual household income	13.95	Share of income from tourism	15.11
Workers' education level	11.89	Share of income from tourism	13.86	Annual household income	13.57
Share of income from outside work	11.74	Number of household workers	12.76	Share of income from outside work	11.10
Social connectedness	11.19	Workers' education level	12.66	Workers' education level	10.99
Number of household workers	10.50	Transformation of cultural tourism products	9.91	Number of household workers	10.96

Share of income from tourism	10.28	Social connectedness	9.89	Social connectedness	7.96
Share of income from local work	7.10	Share of income from outside work	9.12	Transformation of cultural tourism products	7.78
Transformation of cultural tourism products	5.58	Share of income from local work	3.28	Share of income from local work	4.49
Sources of income	5.29	Sources of income	2.57	Workers' health	3.48
Seasonal fluctuations in tourism	1.90	Skills-training opportunities	1.47	Sources of income	3.43
Skills-training opportunities	1.22	Mastery of traditional cultural skills	1.32	Skills-training opportunities	1.76
Tourism-company work	1.16	Workers' health	1.25	Mastery of traditional cultural skills	1.68
Workers' health	0.97	Social factors	1.10	Access to loan opportunities	1.33
Social factors	0.96	Tourism-company work	1.00	Social factors	0.99
Social-network support	0.79	Access to loan opportunities	0.93	Share of income from government subsidies	0.84

5. Conclusions

5.1. Main Findings

Poverty alleviation, as one of the Sustainable Development Goals (SDGs), has been achieved through various pathways. Among them, relocation to exit poverty and pro-poor tourism has been widely applied in practice and extensively discussed in the academy. However, the combination of those two approaches has been less researched, although increasing cases have emerged, especially in China. To investigate the effectiveness of tourism-led relocation, a broader SLA is proposed to evaluate the sustainability of livelihood for new immigrants. Based on data from three villages located in Southeastern China, the findings are as follows.

(1) PAR residents in Rongshui County tourism communities have succeeded in detaching their livelihoods from agriculture. As our survey results show, none of the households are agriculture-led, while 39.69%, 35.05%, 18.56%, and 6.70% of households are supported by local work, tourism, outside work, and government subsidies, respectively. The livelihood sustainability analysis shows that 67 households have high-level livelihood sustainability, 90 have median-level livelihood sustainability, and 37 have low-level livelihood sustainability.

(2) Overall, the livelihood sustainability of three PAR tourism communities in Rongshui County is at the median level (0.4670). Indicators of livelihood capital (0.3105), livelihood strategies (0.1164), and livelihood environment (0.0401) contribute to the overall value in decreasing order. The most crucial livelihood-sustainability indicators are human, financial, and cultural capital and livelihood strategies involving outside work and tourism business. In terms of region and livelihood mode, the indicator values of livelihood sustainability for relocated households in the three communities are as follows: Mengwu Miao (0.5334) > Miaojia (0.4600) > Miaomei (0.4515); tourism-led (0.5395) > outside-work-led (0.5134) > local-work-led (0.4574) > government subsidy-led (0.3000).

(3) The obstacles to livelihood sustainability are multidimensional and complex, with annual household income, the number of household workers, and levels of education acting as common obstacles across the sample population. This comparative analysis also reveals differentiated obstacle factors for households at different levels. High-level households face greater obstacles in relation to social connectedness, sources of income, seasonal tourism fluctuations, and social network support. Median-level households face greater obstacles regarding tourism income share, the transformation of cultural-tourism

products, the mastery of traditional cultural skills, and access to loan opportunities. Households with low-level livelihood sustainability face obstacles concerning the share of income from tourism and work outside the home, workers' health, and access to skills training.

5.2. Contribution and Implication

5.2.1. Theoretical Contribution

As mentioned above, there is a lack of quantitative analysis in studies on the sustainable livelihood of PAR communities, primarily through tourism development. In this paper, both qualitative and quantitative analyses were used to construct an evaluation index system for the sustainability of livelihoods in PAR tourism communities. The paper has several contributions. First, it improves the evaluation index system. Considering special cultural attributes of ethnic minorities held by relocated communities, the index of cultural capital was added on the basis of the original model (i.e., human, natural, physical, financial, and social capital proposed in the mature DFID sustainable livelihood framework). Three aspects of cultural capital, cultural skills mastery, cultural tourism product transformation, and cultural inheritance intention, were specifically measured. Meanwhile, seasonal fluctuations in tourism and magnetic pole indicators such as "tourism company" were added to the vulnerability index of the livelihood environment index so as to make the constructed index system more comprehensively reflect and fit the livelihood characteristics of residents in the relocated tourism communities.

Second, the evaluation method has been improved to some extent. First, the qualitative analysis method was used to determine indicators at all levels, and then questionnaires were designed to conduct a field investigation and in-depth interviews in the cases. Based on the obtained data, a multi-index comprehensive measurement was carried out on the sustainability level of the sampled livelihood. Then, the obstacle diagnosis model was used to estimate the livelihood obstacle factors and degree of obstacles faced by different levels of resettled households. Finally, based on the diagnosis results, the hierarchical improvement strategies of livelihood sustainability were proposed. The multi-index comprehensive measure, ranking algorithm, and obstacle diagnosis model adopted in the study forges new ground for analysis of tourism's role in keeping sustainable livelihood in PAR communities.

5.2.2. Practical Implication

At the end of 2020, after all the poor were lifted out of poverty, China's poverty control entered the "post-poverty alleviation era," which shifted from poverty alleviation to poverty prevention. At the present stage, the most important task is to ensure climbing out of poverty and to avoid poverty returning. During this period, the Chinese government innovatively proposed poverty-alleviation-relocation projects in inhospitable areas, which relocated a considerable proportion of poor people into scenic spots. However, in spite of extensive practice, there is a lack of evaluation and guidance in such a combination. Therefore, based on the findings discussed, we suggest two ways of improvement.

On the one hand, targeted policies should be taken according to the different levels of sustainable livelihood of resettled households. For the high-level group, the focus should be on guiding them to broaden income channels, accumulate social "soft" capital and seek further development of their own. For the medium level, the emphasis should be on cultivating local tourism elites, guiding the transformation of cultural capital, and improving the quality of employment and financing environment. For low-level households, the government should pay attention to their subsequent living security, provide special policies in employment, and carry out in-depth health assistance and intellectual support to prevent them from returning to poverty at any time.

On the other hand, common obstacles should be addressed: tracking the development of relocated tourism communities, formulating a follow-up development of preferential financial loan policies on migrant relocation, attaching importance to the training of their labor skills, mobilizing local tourism enterprises, and exploiting tourist attractions to provide job opportunities. In view of the comprehensive problems found in the research that affect the sustainable livelihood of residents in relocated communities, it is necessary to effectively exert the overall strategy of preventing poverty by tourism and reshape the social adaptation network and multi-subject collaborative governance.

The findings also suggest the vulnerability of livelihood in tourism-relocated communities under the pandemic context, indicating the limited role of tourism in sustainable poverty alleviation during crises. This has implications for fully achieving the SDGs: comprehensive sustainable livelihood assets should be built around the tourism industry to strengthen people's ability against crises and increase the resilience of poverty alleviation outcomes.

5.2.3. Limitations

First, when conducting the questionnaire survey, only one typical county (i.e., Rongshui County) was taken as the case. The limited data source would cause some biases. The generalizability of the research conclusions and promotion strategies needs to be further verified. Second, there was a lack of dynamic tracking research. Although this study evaluates the future livelihood sustainability level of sampled sites, as time goes on and the life cycle of tourism destinations evolves, the livelihood conditions of the samples will undergo a series of changes. Therefore, in the absence of long-term dynamic tracking research, the conclusion of this study may not be applicable in the future. That is, it may not accurately predict the future livelihood sustainability of sampled sites in the long run.

To this end, in future studies, it is suggested that more indicators (e.g., psychological capital, infrastructure, and public service supply and demand ratio) should be introduced to further improve the livelihood sustainability evaluation index system. Moreover, several typical cases can be selected for comparative studies, such as relocation sites in Guizhou, Yunnan, Sichuan, and other places in China, so as to verify conclusions in this study and improve suggestions on strategies. To strengthen the dynamic research, researchers can obtain multi-stage time series data and increase the depth of data mining.

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