Examining the Role of Cultural Adaptability in Enhancing Livelihood Resilience in Ethnic Rural Tourism Destinations

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This study explores the key factors influencing household livelihood resilience in ethnic rural tourist areas, specifically focusing on cultural adaptability. An analytical framework and measurement indicators for tourism livelihood resilience are proposed, with empirical analysis carried out in the two Bai minzu villages in Dali, Yunnan, China. Principal component analysis and multiple linear regression models were used to calculate household livelihood resilience and compare different livelihood strategies in two cases. Findings reveal more robust buffer capacity but weaker learning capacity among evaluated dimensions in two cases. Families involved in tourism and other sectors demonstrate superior livelihood resilience compared to those solely reliant on tourism. The findings reveal the significant impact of policy awareness, cultural confidence, and savings status on ethnic village household livelihood resilience. The study also identifies areas for future research, including the need for comparative and evolutionary research on multiple case types and a deeper exploration of the inherent mechanism between external shocks, tourism livelihood resilience, and livelihood strategies.

Keywords: ethnic rural tourism destination, tourism livelihood resilience, livelihood sustainability, cultural adaptability, influencing factors on tourism livelihood resilience

INTRODUCTION

China's tourism industry has become a critical catalyst for socio-economic expansion across various regions, inciting shifts in residents' livelihood strategies (Li et al. 2016) and diversification (Bires & Raj 2020). It has demonstrated its efficacy as a path toward sustainable livelihoods (Tao & Wall 2009). Nonetheless, unpredictable factors such as the COVID-19 pandemic, economic volatility, and geopolitical uncertainties present formidable challenges to livelihood recovery and sustainability for families involved in tourism operations (Adams et al. 2021). The 2022 Global Risk Report by the World Economic Forum has underscored Livelihood Resilience as a ubiquitous global risk for the forthcoming decade, suggesting the enhancement of resilience to surmount future adversities. Consequently, bolstering resilience has

emerged as a critical strategy for the tourism industry to withstand shocks (Okafor, Khalid & Burzynska 2021), underscoring the need to foster livelihood recovery in ethnic tourism destinations with diminished coping capacities.

Livelihood resilience offers a novel lens for scrutinizing livelihood issues (Quandt 2018) and has evolved as a new concept for the tourism industry to adapt to and confront changes, presenting a new trajectory for investigating tourism livelihood challenges (Wall 2018). Traditional cultural elements significantly contribute to the growth of tourism communities and the recuperation of residents' livelihoods (Adams et al. 2021; Ghahramani, McArdle & Fatoric 2020; Lin & Lin 2020). However, a review of the advances in tourism livelihood resilience research reveals that the significance of traditional cultural factors in promoting livelihood recovery is somewhat underemphasized in existing studies (Ma et al. 2021). A research analysis framework for livelihood resilience from cultural adaptability is noticeably absent, as is a focus on livelihood recovery in tourist destinations.

This paper uniquely infuses the concept of cultural adaptability into the construct of livelihood resilience. We propose an analytical framework for tourism family livelihood resilience, design a measurement index system, and select representative two Bai minzu villages for measuring and contrasting levels of family livelihood resilience. We also explore the key elements impacting family livelihood resilience. Our research primarily seeks to answer the following questions: (1) How to construct a family livelihood resilience analysis framework with cultural adaptability for the tourism environment? (2) What is the resilience level of families in tourist destinations? Are there discernible differences among families with varying livelihood strategies? (3) What are the principal factors influencing family livelihood resilience? What is the role of cultural adaptation? Addressing these queries holds substantial theoretical and practical value for refining the analytical framework of tourism livelihood resilience, fostering the recovery of family livelihoods in ethnic tourist destinations, and enhancing tourism governance capabilities.

LITERATURE REVIEW AND ANALYSIS FRAMEWORK

Livelihood Resilience

The concept of resilience, initially sourced from the fields of physics and engineering (Nyamwanza 2012), was expanded by Holling (1973) from ecological resilience to socio-ecological system resilience, eventually encompassing community resilience (Biggs, Hall & Stoeckl 2012). The subsequent marriage of the concepts of livelihood and resilience marked the advent of livelihood recovery research (Tanner et al. 2015).

Ifejika Speranza, Wiesmann, and Rist (2014) proposed an empirical analysis framework for livelihood resilience, composed of three dimensions: buffering capacity, self-organizing capacity, and learning capacity, which has since become the bedrock for subsequent research. Quandt (2018) initially devised the Household Livelihood Resilience Assessment (HLRA) methodology anchored on livelihood capital. Subsequent research further refined the livelihood resilience indicator system (Sina et al. 2019a), amalgamating social network analysis (SNA) methods with qualitative network research to evaluate livelihood resilience (Rockenbauch, Sakdapolrak & Sterly 2019). Studies indicate that distinct livelihood strategy choices yield varying livelihood resilience outcomes in different contexts (Nath et al. 2020). Livelihood resilience influences livelihood strategy choices and transitions, serving as a foundation for households to recalibrate their livelihood strategies (Liu et al. 2020). For economically challenged residents, livelihood recovery can expedite poverty alleviation (Li, Deng & Zhou 2022). In the aftermath of major natural disasters, rural inhabitants can enhance livelihood resilience and facilitate recovery through judicious livelihood strategies (Zhou et al. 2021). Studies on ecological reserves suggest that residents can bolster livelihood resilience through proactive ecological policy responses and diversified livelihood activities (Zhao et al. 2021).

Livelihood resilience is influenced by myriad factors, with cultural elements playing a significant role. Crane (2010) emphasized the importance of culture in socio-ecological systems. Cultural sensitivity and social governance structures significantly affect livelihood resilience (Sina et al. 2019b). Indigenous

knowledge embedded within traditional cultures is pivotal in community resilience practices (Bui et al. 2020). Cultural traditions strengthen rural communities' livelihood assets and generate new opportunities during vulnerabilities (Daskon 2010). Traditional social networks in rural communities, imbued with the community's cultural elements, significantly impact livelihood resilience (Wang et al. 2021). So cultural capital is a new concept within the livelihood context (Daskon & McGregor 2012).

Tourism Resilience and Culture Effects

The introduction of resilience theory into tourism research has garnered substantial attention due to its central role in theory and practice. Researchers view tourism resilience as a vital extension of sustainable livelihood pathways (Wall 2018), resulting in the formation of a tourism community resilience analysis framework (Calgaro, Lloyd & Dominey-Howes 2014). A village within the context of tourism development can be viewed as a complex adaptive socio-ecological system (Zhao et al. 2021), prompting scholars to propose a cross-scale adaptive evolutionary theory analysis framework (Calgaro et al. 2014). Tourism community resilience is also affected by a multitude of complex factors. Communities that engage equitably in tourism development and share its benefits often exhibit stronger resilience (Holland et al. 2021). Tourism development should prioritize community resilience building, catering to the needs of community capital through tourism development planning and shifts in development models (Wakil, Sun & Chan 2021).

Research conducted in tourist destinations has underscored traditional cultural elements' pivotal role in bolstering resilience in the tourism community (Sydnor-Bousso et al. 2011). Notably, cultural capital can enhance the livelihood standards of rural tourism households rich in traditional culture. Tourism community households' livelihood strategies and transitions are intimately tied to cultural adaptation, with their cultural heritage as a crucial resource for enhancing community resilience and promoting sustainable heritage tourism (Ghahramani et al. 2020). Indigenous tourism, rooted in culture, can provide an essential livelihood source for residents in post-disaster tourist destinations, making community-based cultural tourism an effective post-disaster livelihood recovery strategy (Lin & Lin 2020). Traditional culture emerges as a vital livelihood capital for residents in tourist destinations. Leveraging material cultural resources and intangible cultural heritage to develop rural tourism can foster shifts in household livelihood strategies (Ma et al. 2021). Particularly for ethnic communities, cultural heritage, and tourism development are primary drivers for enhancing community resilience and fostering sustainable community development (Ghahramani et al. 2020).

Tourism Livelihood Resilience Framework from Cultural Adaptability

Culture is a human system designed for adaptation to the natural and social environment. Human societies evolve steadily through generations of cumulative cultural adaptation (Pagel 2012). Cultural adaptation involves reviewing and changing the structure of a program or practices to more appropriately fit the needs and preferences of a particular cultural group or community (Berry 1997). Tourism development's cultural shifts and livelihood transitions constitute a cultural adaptation process. In this process, whether residents in ethnic regions can maintain their traditional culture to adapt to the dynamic environment is a significant research-worthy issue.

Hence, drawing from the above analysis, this paper, rooted in the Buffering Capacity, Self-organizing Capacity, and Learning Capacity of livelihood resilience proposed by Ifejika Speranza et al. (2014), seeks to incorporate Cultural Adaptability into the theoretical analysis framework of livelihood resilience. This results in a tourism livelihood resilience analysis framework encompassing the tourism development environment, livelihood resilience, and livelihood strategies (Figure 1). This framework mirrors the evaluation and adaptation process households in tourist destinations undergo when faced with environmental shocks based on their inherent resilience and livelihood strategies. Cultural adaptability is a vital component of tourism livelihood resilience. It signifies households' perception and confidence level in tourist destinations towards their traditional culture under the tourism development environment and their capacity to adapt to external environmental changes or shocks using, or aided by, cultural elements such as traditional culture, rules, and skills.

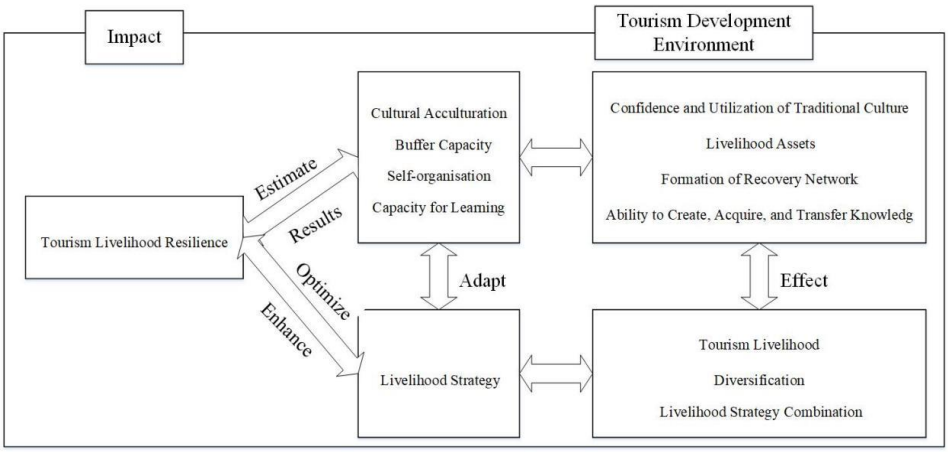

Figure 1. Tourism livelihood resilience analysis framework.

RESEARCH METHODOLOGY

Study Sites and Data Collection

This study selects two Bai ethnic villages, located in Dali City, Yunnan Province, China, as the case sites for exploring tourism livelihood resilience. Dali is home to famous attractions such as Cangshan Mountain and Erhai Lake, renowned worldwide for its picturesque natural scenery characterized by "Wind, Flowers, Snow, and Moon" and its rich Bai ethnic cultural heritage. Xi and Lan (pseudonyms) villages, located on the west and east sides of Erhai Lake respectively, are the two most famous villages in Dali (Figure 2). Xi is renowned for its Bai-style residential architecture and commercial cultural heritage, while Lan is celebrated for its breathtaking views of Cangshan Mountain and Erhai Lake, as well as its reputation as a gathering place for cultural and artistic luminaries.

Traditionally, Xi villagers have a strong tradition of commerce, with livelihoods primarily dependent on trading, agriculture, fishing, and migrant labor. In contrast, families in Lan primarily rely on agriculture and migrant labor for their livelihood. Today, tourism has become the pillar industry of these villages. Providing services such as specialty dining, homestays, handicrafts, tour-guards, and traditional ethnic clothing has become the main source of income for local families.

Figure 2. Xi (Left) and Lan (Right) villages.

Since 2015, Dali has sequentially undertaken projects such as managing Erhai Lake, land transfer, and ecological relocation. Following these, the COVID-19 pandemic induced continuous disruptions to the tourism industry, posing considerable challenges to the recovery and sustainability of household livelihoods.

In January 2022, our research team surveyed Xi Village and Lan Village, both Bai ethnic villages in Dali City. Data were compiled through household survey questionnaires and semi-structured interviews, each spanning approximately 40-60 minutes. The survey engaged 32 respondents and distributed 199 questionnaires, of which 198 were deemed valid, rendering a questionnaire validity rate of 99.5%. Among these, 101 questionnaires were from Xi Village and 97 from Lan Village. The survey primarily encompassed:

1) basic information such as household structure, income level, livelihood strategies, and employment status;
2) primary measurement indicators of livelihood resilience, incorporating 21 indicators;
3) the state of households' participation in tourism development, the impact of the COVID-19 pandemic, tourism recovery measures, and future mitigation strategies.

Measurement Index System for Household Livelihood Resilience

In line with the constructed analytical framework, the measurement index system for household Livelihood Resilience (LR) is primarily developed from four dimensions: Buffer Capacity (BC), Self-organization Capacity (SC), Learning Capacity (LC), and Cultural Adaptability (CA). Thoroughly drawing upon sustainable livelihood approaches and other existing research index systems, 21 indicators were chosen (Table 1).

Buffer Capacity (BC) indicators encompass labor capacity, housing conditions, living and production assets, household income, savings status, and borrowing capacity. These reflect the personal livelihood capital of households in tourism destinations and their ability to withstand external shocks.

Self-organization Capacity (SC) is depicted by indicators such as village leadership, policy awareness, policy support, trust in relationship networks, social support networks, and management capacity. These indicate that the higher the level of policy awareness, the more government policy support and social assistance a household receives, and the better they are at utilizing government and social networks to enhance their ability to mitigate livelihood risks.

Learning Capacity (LC) is primarily gauged through information acquisition capacity, sharing capacity, skill training opportunities, educational level, and future risk response capacity. The stronger the capacity to acquire information, share information, and learn from training, the quicker the households in the tourism area can grasp information, adjust actions to respond to risks promptly, and the stronger their ability to mitigate risks and seize opportunities.

Cultural Adaptability (CA) refers to the perception and confidence level of households in tourist areas toward traditional culture and their ability to possess and use cultural elements to cope with external shocks. Its index system reflects the Cultural Awareness (CAw), Cultural Confidence (CC), Cultural Ownership (CO) and Cultural Application (CAp). Cultural confidence primarily measures the extent to which residents firmly utilize and showcase their ethnic culture during tourism activities. This is assessed through observing and interviewing residents about their cultural tourism practices. Based on existing research on cultural capital indicators, cultural adaptability indicators consist of cultural cognition, confidence, ownership, and application.

TABLE 1
HOUSEHOLD LIVELIHOOD RESILIENCE INDICATORS FOR TOURIST DESTINATIONS

Dimension	Indicator	Weights	Description and Definition of Indicators
Buffer Capacity (BC) (0.323)	Labor Capacity (LC)	0.056	Measured by the age composition of the community or family members (age ≤100.2 + 11-180.6 + 19-601 + ≥600.5)
	Housing Condition (HC)	0.030	Assigned based on the type of family housing (traditional ethnic style structure; value 1; traditional wooden structure and concrete mix; value 0.75; brick and wood structure; value 0.5; concrete structure; value 0.25)
	Living Assets (LA)	0.052	The proportion of the options of production and living assets owned by the family to all options (number of assets owned / total number of assets)
	Household Income (HI)	0.064	The level of total annual household income (measure value = total annual household income)
	Savings Status (SS)	0.062	Assigned based on the current savings amount of the family (90,000 and above; value 1; 60,000 (inclusive) - 90,000; value 0.75; 30,000 (inclusive) - 60,000 value 0.5; below 30,000; value 0.3)
	Borrowing Ability (BA)	0.059	Whether a loan can be obtained: if yes, value 1; if no, value 0
Self-organization Capacity (SC)（0.245）	Leadership Ability (LA)	0.030	The leadership ability of the family. Whether the family member is a government leader? (if yes, value 1; otherwise, value 0)
	Policy Awareness (PA)	0.048	Characterized by the awareness of policies such as tourism, epidemics, social security, poverty alleviation, subsidies, etc.: quintile
	Policy Support (PS)	0.031	Opportunities to receive government assistance and policy preferences during the epidemic
	Relationship Network Trust (RT)	0.046	Characterized by the degree of trust in neighbors and friends, and relatives
	Social Support Network (SSN)	0.051	The number of friends and relatives who can provide help
	Governance Ability (GA)	0.039	Perception of the village committee's governance ability and attitude towards disasters and village affairs

Learning Capacity (LC) （0.221）	Information Acquisition Ability (IAA)	0.039	The number of channels for families to acquire information
	Sharing Ability (SA)	0.048	The frequency of sharing information and skills between farmers
	Skill Training Opportunities (STO)	0.035	The number of times family members participates in skill training
	Education Level (EL)	0.059	Measured by the education level of community or family members (no schooling = 1; primary school = 2; junior high school or technical secondary school =3 high school or junior college = 4; undergraduate and above = 5)
	Risk Response Ability (RRA)	0.040	The tolerance for risk and the ability to seize opportunities in the current environment
Cultural adaptability (CA) （0.211）	Cultural Awareness (CAw)	0.046	The degree of farmers' understanding of local traditional culture
	Cultural Confidence (CC)	0.051	The confidence of farmers in the development and inheritance of local traditional culture
	Cultural Ownership (CO)	0.059	The degree of ownership of material cultural resources that can be used for tourism development by farmers
	Cultural Application (CAp)	0.055	The degree of application of local traditional culture by farmers in the process of tourism operation

Data Standardization

The livelihood resilience index system encompasses 21 indicators that differ in dimensions; hence the raw data should be standardized. This study employs the range standardization method to render the indicator variables dimensionless. Given that all the indicators in this study are positive, the standardization formula for positive indicators is utilized. The calculation formula is:

$$X'_{ij} = \frac{x_{ij} - \lambda_{jmin}}{\lambda_{jmax} - \lambda_{jmin}} \quad (1)$$

In this formula, X_{ij} represents the raw data in the i row and j column, λ_{jmin} symbolizes the minimum value of the raw data in the j column, λ_{jmax} represents the maximum value of the raw data in the j column, and X'_{ij} denotes the standardized data in the i row and j column.

Reliability and Validity Test

SPSS 23 statistical software tests the data's reliability and validity. The Cronbach's α coefficient is 0.768, signifying a high degree of data reliability; KMO equals 0.728, demonstrating that the data has a high level of sampling adequacy; Bartlett's test of sphericity value is 1184.571, sig=0.000, suggesting that the measurement indicator's validity test is satisfactory.

Indicator Weight and Resilience Measurement Method

This paper uses the principal component analysis method to extract the main factors determining the weight of indicators for family livelihood resilience in tourism development. With an eigenvalue greater than 1, seven principal components were extracted, and the cumulative variance contribution rate was 64.007%. The expression of the principal component analysis method for calculating the weight of the indicator is:

$$W_{pca} = \frac{M}{N} \tag{2}$$

In the formula, M stands for the load score coefficient of the main factor, and N denotes the eigenvalue root, normalizing. W_{pca} yields the corresponding index weight. The weights of the 21 calculated indicators are shown in Table 1. The weights of the four dimensions are the sum of the weights of each indicator they encompass, which are: buffering capacity (0.323), self-organization capacity (0.245), learning capacity (0.221), and cultural adaptability (0.211).

The weighted sum method is applied to obtain the measurement value of tourism household livelihood resilience. The formula for measuring tourism livelihood resilience is as follows:

$$R = \sum_i^m Q_i X_i \tag{3}$$

R represents the measurement value of tourism livelihood resilience, Q_i signifies the weight of the i indicator, and X_i stands for the standardized value of the i indicator. The larger the measurement value of tourism livelihood resilience, the stronger the resilience of livelihood.

Construction of Multiple Regression Model

For to find the key influencing factors of tourism household livelihood resilience, this study employs the method of multiple regression analysis and establishes the following model:

$$R = \alpha + \beta_i X_i + u_i \tag{4}$$

R represents the resilience of household livelihood in the tourist area, α is the constant term, β_i is the coefficient of the i-th variable, u_i is the disturbance term, and X_i represents all possible influencing factors of the resilience of household livelihood R in the tourist area.

RESEARCH RESULTS

Measurement Results of Household Livelihood Resilience

The level of tourism livelihood resilience reflects the ability of households in tourist areas to maintain and enhance their livelihoods in the face of environmental changes and to recover from them. As seen from the measurement results in Table 2, the overall score of the household livelihood resilience in the case area is 0.511, and the scores of the four dimensions are buffering capacity (0.157) > cultural adaptability (0.130) > self-organization capacity (0.113) > learning capacity (0.111). The buffering capacity and cultural adaptability are relatively strong, while the self-organization and learning capacity are relatively weak.

TABLE 2
HOUSEHOLD LIVELIHOOD RESILIENCE VALUES FOR TOURIST DESTINATIONS

Livelihood Resilience	Buffer Capacity	Self-organization Capacity	Capacity for Learning	Cultural adaptability
0.511	0.157	0.113	0.111	0.130

Comparative Analysis of Household Livelihood Resilience in the Case Area

A single-factor variance analysis (ANOVA) is utilized to determine whether there is a significant difference between different case areas and the four dimensions of analysis. According to the analysis results (Table 3), the livelihood resilience of the two case areas significantly differs in terms of buffering capacity (P=0.048), self-organization capacity (P=0.038), and cultural adaptability (P=0.026), but not significantly in terms of learning capacity (P=0.273).

TABLE 3
COMPARISON OF HOUSEHOLD LIVELIHOOD RESILIENCE IN TOURIST DESTINATIONS

Case sites		Buffer Capacity	Self-organization Capacity	Capacity for Learning	Cultural adaptability	Livelihood Resilience
Lan		0.152	0.108	0.109	0.124	0.492
Xi		0.163	0.118	0.113	0.136	0.529
Chi-square test	Levene statistic	0.108	0.576	0.053	0.702	0.521
	P	0.743	0.449	0.818	0.403	0.471
One-way ANOVA ANOVA	F-value	3.955	4.378	1.207	5.026	7.210
	P	0.048	0.038	0.273	0.026	0.008

The measurement results in Table 3 also reflect the comparison of the two case areas. The resilience of household livelihood in Xi Village (0.529) is higher than that in Lan Village (0.492), showing advantages in all four dimensions. Combined with the indicators, the differences in livelihood resilience in the two case areas can be seen.

The difference in cultural adaptability leads to differences in the selection of livelihood strategies. Most people in Xi are optimistic and confident about the recovery of tourism and the uniqueness of their own culture, while residents in Lan are worried about whether they can adapt to the emerging tourism market demand in the future. The reason is that, on the one hand, the diverse cultural elements such as Bai ethnic houses, traditional customs, and mercantile culture in Xi give the people of Xi a solid cultural identity. At the same time, tourism development is managed by local companies with fewer foreign investors. The tourism business format is rich in traditional cultural elements, demonstrating cultural confidence, identification, and adaptability when facing tourism fluctuations. On the other hand, Lan, having many foreign investors, is greatly affected by market fluctuations and investment entities, lacks confidence and utilization of its own traditional culture, and is still not adaptable to tourism fluctuations and future strategic choices.

Comparative Analysis of Household Livelihood Resilience of Different Livelihood Strategies

The livelihood strategies of households in the case area can be divided into Tourism type, Diversified type, and other types of livelihood strategies (Table 4). Tourism type refers to all family members engaged in the tourism-related industry, and the family income almost all comes from tourism business activities. Diversified type households carry out diversified livelihood activities while participating in tourism, and their family income is also mainly from tourism income. Other types include families that mainly engage in other livelihood activities such as agriculture and work and family members who do not participate in tourism operations.

TABLE 4
HOUSEHOLD LIVELIHOOD STRATEGIES AT CASE SITES

	Tourism Type	Diversified type	Other Types	Total
Total	48（24.2%）	96（48.5%）	54（27.3%）	198
Xi Village	24（23.8%）	58（57.4%）	19（18.8%）	101
Lan Village	24（24.7%）	38（39.2%）	35（36.1%）	97

TABLE 5
COMPARISON OF HOUSEHOLD LIVELIHOOD RESILIENCE WITH DIFFERENT LIVELIHOOD STARTEGIES

Livelihood Types		Livelihood Resilience	Buffer Capacity	Self-organization Capacity	Capacity for Learning	Cultural adaptability
Tourism Type		0.501	0.165	0.105	0.107	0.124
Diversified Type		0.540	0.165	0.120	0.118	0.137
Other Type		0.468	0.136	0.109	0.102	0.122
Homogeneity of Variance Test	Levene's Statistic	0.389	0.389	0.389	0.389	0.389
	P	0.678	0.678	0.678	0.678	0.678
One-way ANOVA ANOVA	F Value	7.866	7.866	7.866	7.866	7.866
	P	0.001	0.006	0.005	0.009	0.036

According to the analytical framework, households with different livelihood strategies are differently affected by tourism and adjust their livelihood strategies based on their recovery capabilities to cope with environmental changes. Combined with the analysis results of Table 5, the comparison of the livelihood resilience of households with different livelihood strategies is Diversified type (0.540) > Tourism type (0.501) > Other types (0.468). Overall, households that participate in tourism operations (Diversified type and tourism type) have stronger livelihood resilience than those that do not participate in tourism (other types), and households with diversified livelihood strategies (Diversified type) have stronger livelihood resilience than those with a single strategy (Tourism type and Other types). To further explore the differences caused by different livelihood strategies on livelihood resilience, we conducted statistics on the scores of the four dimensions of livelihood resilience for different livelihood strategies. We used single-factor variance analysis (ANOVA) to analyze the livelihood resilience differences of households with different livelihood strategies. The analysis results are shown in Table 5.

From the perspective of buffering capacity, the comparison results of households with different livelihood strategies are Diversified type (0.165) = Tourism type (0.165) > Other types (0.136), with a

significant difference (P=0.001). Due to the advantages in savings status, credit capacity, and production and living material index statistics, households participating in tourism (Tourism type and Diversified type) have a more robust Buffering Capacity to face shocks than other households.

From the perspective of Self-organizing Capacity, Diversified type (0.120) > Other types (0.109) > Tourism type (0.105), with a significant difference (P=0.005). Members of Diversified type households engage in various livelihood activities, including tourism, are relatively sensitive to policy information, have more channels to obtain information and ways to seek social support, and demonstrate a relatively Self-organizing Capacity.

From the perspective of Learning Capacity, Diversified type (0.118) > Tourism type (0.107) > Other types (0.102), with a significant difference (P=0.009). Diversified type households show clear advantages in all indicators of learning ability. Family members generally have a higher education level and more opportunities for skill training.

From the perspective of Cultural Adaptability, Diversified type (0.137) > Tourism type (0.124) > Other types (0.122), with a significant difference (P=0.036). Diversified households score higher on all four indicators than the other types, demonstrating good cultural adaptability.

Analysis of Factors Affecting Household Livelihood Resilience

In order to clarify the key influencing factors of household livelihood resilience in tourist areas, we selected household livelihood resilience as the dependent variable and all indicators as independent variables for multiple regression analysis. To avoid collinearity between indicators, we used stepwise regression for calculations and selected ten influencing factors based on the degree of influence (β). We included these selected influencing factors in other models for multiple regression analysis to determine the degree of impact of these factors on different livelihood strategies and case areas. A total of 3 levels and six models were constructed (Table 6). Model 1 is a regression analysis of all variables on the livelihood resilience of the entire sample of households in tourist areas, models 2, 3, and 4 are analyses of the influencing factors of households with the three livelihood strategies of Tourism type, Diversified type, and other types.

TABLE 6
FACTORS INFLUENCING HOUSEHOLD RESILIENCE

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Household income	0.169***	0.090***	0.232***	0.096*	0.239***	0.101***
Savings status	0.206***	0.339***	0.206***	0.144***	0.171***	0.245***
Borrowing ability	0.139***	0.077**	0.116***	0.192***	0.127***	0.163***
Policy awareness	0.255***	0.286***	0.260***	0.230***	0.257***	0.257***
Social support network	0.166***	0.159***	0.170***	0.112***	0.152***	0.144***
Sharing ability	0.120***	0.113**	0.141***	0.129***	0.136***	0.118***
Education level	0.160***	0.160***	0.176***	0.113***	0.201***	0.098***
Cultural confidence	0.250***	0.276***	0.270***	0.257***	0.281***	0.239***
Cultural ownership	0.164***	0.222***	0.137***	0.202***	0.122***	0.194***

Cultural application	0.108***	0.027	0.126**	0.142***	0.083*	0.149***
Constants	0.082	0.090	0.087	0.087	0.081	0.078
Sample size	198	48	96	54	101	97
R^2	0.928	0.961	0.878	0.946	0.910	0.944
F-test	255.886***	118.369***	69.180***	94.203***	163.979***	163.979***

(1) The analysis results from Model 1 reveal that all ten variables positively influence household livelihood resilience. Among these, policy awareness (0.255), cultural confidence (0.250), and savings status (0.206) significantly impact livelihood resilience. Meanwhile, household income (0.169), social support network (0.166), and cultural ownership (0.164) are also crucial for maintaining livelihood resilience.

(2) Models 2, 3, and 4 illustrate the influencing factors and variations among households with different livelihood strategies. The ratios of households with Tourism type, Diversified type, and Other types of livelihood strategies are 24.2%, 48.5%, and 27.3%, respectively. For Tourism type households, savings status (0.339), policy awareness (0.286), and cultural confidence (0.276) are particularly significant. For Diversified type households, in addition to cultural confidence (0.270) and policy awareness (0.260), household income (0.232) also exerts a substantial impact. For other types of households, cultural confidence (0.257), policy awareness (0.230), and cultural ownership (0.202) are pivotal for livelihood recovery. Notably, cultural confidence, policy awareness, and cultural ownership significantly influence all three types of households.

(3) Models 5 and 6 present the multiple regression analysis results for the two case locations, Xi and Lan. Savings capacity, policy awareness, and cultural confidence significantly influence both locales. Owing to land transfer and business traditions, most households in Xi village have engaged in business, with tourism operations becoming a part of their activities after tourism development. As a result, the proportion of Diversified type households is relatively high (57.4%), while the other types (mainly working) households are the fewest (18.8%). These households value factors such as household income for managing liquid assets and educational level for supporting and inheriting business activities, making the impact of household income (0.239) and education level (0.201) in Xi more pronounced. Conversely, in Lan village, besides the Diversified type (39.2%), more households adopt Other types of livelihood strategies (working type) (36.1%). These households consider loan support and possession of cultural skills as crucial for livelihood recovery at this stage, thus making the impact of loan capacity (0.163) and cultural ownership (0.194) more distinct.

(4) It is worth highlighting that cultural confidence, savings status, and policy awareness demonstrate significant influence across the six models. Cultural confidence encourages households to take proactive actions and boosts their confidence to overcome challenges. Savings status facilitates diversified resource allocation and livelihoods of households in tourist areas(Zhou et al., 2021). Lastly, policy awareness aids households in tourist areas to comprehend policies and respond appropriately swiftly.

(1) Model 1 analysis reveals that all ten variables positively influence household livelihood resilience, notably policy awareness, cultural confidence, and savings status.

(2) Models 2, 3, and 4 show varying factors among households with different livelihood strategies. For Tourism type households, savings status, policy awareness, and cultural confidence are critical. For Diversified type households, household income is also influential. For Other types of households, cultural confidence, policy awareness, and cultural ownership are vital.

(3) Models 5 and 6 present analysis results for Xi and Lan. Both key influences include savings capacity, policy awareness, and cultural confidence. In Xi, household income and education level are more pronounced due to its high percentage of Diversified type households. In Lan, loan capacity and cultural ownership are more prominent as more households adopt Other types of livelihood strategies.

(4) Across all models, cultural confidence, savings status, and policy awareness significantly influence proactive behavior, diversified resource allocation, and quick policy comprehension respectively.

CONCLUSIONS AND DISCUSSION

This paper examines the role of cultural adaptation and investigates the key factors influencing household livelihood resilience in ethnic rural tourist areas. Through the innovative integration of cultural adaptability into the analytical framework of tourism livelihood resilience, the study revealed the significant role of cultural factors in household resilience and tourism recovery. Using the case studies of Xi and Lan ethnic villages in Dali, Yunnan, the research measured household livelihood resilience and identified ten key influencing factors. These included policy awareness, cultural confidence, and savings status. The study further highlighted the differences in resilience across various livelihood strategies and case locations.

(1) We constructed an analytical framework for tourism livelihood resilience, which includes cultural adaptability. This framework delineates the relationship between environmental shocks, tourism livelihood resilience, and livelihood strategies, highlighting the role of cultural adaptability in livelihood resilience. Our findings show that cultural confidence and cultural ownership play significant roles in different types of rural tourism destinations and households.

(2) Case studies allowed us to measure the livelihood resilience of rural tourism households and compare resilience across different livelihood strategies and case locations. On average, the resilience score for households was 0.511, with households participating in tourism operations demonstrating greater resilience than those not participating. Moreover, households employing diversified livelihood strategies showed higher resilience than those relying on a single strategy.

(3) We identified vital factors influencing household livelihood resilience. Policy awareness, cultural confidence, and savings status were particularly significant among the ten factors we analyzed. For households employing different livelihood strategies, cultural confidence, policy awareness, and cultural ownership were essential across all types. The results underscore the importance of cultural heritage and policy dissemination in local household livelihood activities. Our analysis also revealed that different factors influenced different cases: Xi was more influenced by household income and education level, while Lan was more influenced by loan capacity and cultural ownership.

This research contributes significantly to understanding household livelihood resilience in ethnic rural tourist areas by innovatively integrating cultural adaptability into the traditional livelihood resilience analysis framework. The study not only expands the theoretical understanding of livelihood resilience in the context of tourism but also provides practical insights for tourism recovery. It introduces a comprehensive set of analysis methods, including a resilience measurement index and multiple linear regression models, enhancing the methodological system of tourism livelihood resilience. Additionally, through detailed case studies, the research provides valuable data and insights about the impact of COVID-19 on rural tourism and highlights the role of cultural adaptation, policy awareness, and diversified livelihood strategies in boosting resilience. These findings are of great value to policymakers, community managers, and local households for effective tourism recovery and sustainable rural development.

This research illuminates the pivotal role of cultural adaptability and diversified livelihood strategies in enhancing household resilience in ethnic rural tourist areas. It advocates for a more nuanced understanding of the interplay between external shocks, cultural confidence, policy awareness, and livelihood strategies in shaping households' responses to tourism fluctuations. The findings underscore the need for the government and local communities to recognize and harness the inherent cultural strengths of local households in formulating and implementing policies to foster tourism recovery and resilience. Furthermore, the insights generated by this study highlight the importance of fostering a supportive environment, including information sharing, skills training, and access to credit, to enable rural tourism households to adapt and thrive amid changing tourism landscapes.

While this research provides valuable insights into the resilience of household livelihoods in rural tourist areas, several limitations exist. Firstly, the research is based on case studies from two rural tourist locations in Dali, Yunnan, which, while representative, may not fully capture the diversity and complexity

of rural tourism livelihoods in other contexts. Therefore, the findings may not apply to all rural tourist areas. Secondly, although the study presents a comprehensive analysis framework for tourism livelihood resilience, the inherent mechanisms between external shocks, tourism livelihood resilience, and livelihood strategies could be further explored. Finally, while the study identifies key factors influencing livelihood resilience, it does not account for potential variations over time, suggesting a need for longitudinal studies to capture the dynamics of livelihood resilience in the face of changing tourism trends and shocks.

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