

Exploration of the "Ancient Tree +" Ecologically Empowered Rural Cultural Tourism Symbiosis Model——Taking the Community-Participatory Rural Revitalization Practice of Xiaobu Village, Zhaoqing City as an Example

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Abstract: Against the backdrop of comprehensively advancing the rural revitalization strategy, how to leverage unique rural resources to achieve sustainable socio-economic development has become a crucial issue. This study takes Xiaobu Village, Dinghu District, Zhaoqing City, Guangdong Province as the research object, focusing on the conservation and development of its abundant ancient tree resources. Based on the framework of symbiosis theory, employing methods such as field investigation, in-depth interviews, and quantitative analysis, it systematically explores the feasibility and specific implementation pathways of the "Ancient Tree +" rural revitalization model. The research constructs a four-in-one development model centered on ancient tree resources, integrating cultural heritage, ecological tourism, economic development, and environmental protection. Empirical tests using panel data from 21 prefecture-level cities in Guangdong Province reveal that for every 1% increase in the number of ancient tree cultural tourism development projects, tourist arrivals increase by an average of approximately 2.21%, with a significant substitution effect between ancient tree resources and development projects. The research findings indicate that deeply exploring the cultural value of ancient trees and synergistically developing their multiple functions can effectively achieve a mutually beneficial symbiosis between ecological protection and economic development, providing a new pathway for rural revitalization. Using Xiaobu Village as a case study, this research formulates a specific plan to empower rural economic development with ancient tree resources as the core, offering theoretical reference and practical paradigm for similar areas to promote rural revitalization by leveraging distinctive resources.

Keywords: Ancient Trees, Rural Revitalization, Cultural Tourism Symbiosis, Community Participation, Symbiosis Theory

1. Introduction

1.1. Research Background

The Central No. 1 Document emphasizes that to achieve Chinese-style modernization, it is to accelerate the comprehensive revitalization of rural areas, strengthen county-level industries that benefit farmers, develop rural specialty industries, improve mechanisms for linking agriculture with agriculture, and promote cooperation among multiple entities ^[1]. The "Ancient Tree +" model, which empowers cultural tourism through ecological resources, breaks traditional industrial boundaries, establishing an innovative pathway for the synergistic development of distinctive ecological resources and the cultural tourism industry, providing new support for deepening rural reform and advancing comprehensive rural revitalization.

In 2025, the General Office of the State Council issued "Several Measures to Further Cultivate New Growth Points and Prosper Cultural and Tourism Consumption," activating the deep integration of "Cultural Tourism + Hundreds of Industries" and "Hundreds of Industries + Cultural Tourism" through 18 initiatives across six major areas ^[2]. Xiaobu Village, under the jurisdiction of Sucun Community,

Kengkou Subdistrict, Dinghu District, Zhaoqing City, possesses rich historical and ecological resources, including over a dozen century-old ancient trees, a Qing Dynasty ancient bridge, Chaolong Ancestral Temple, and ancient village architecture, indicating significant potential for cultural tourism development. However, it also faces challenges such as insufficient awareness of resource value, imbalance between conservation and development, singular industrial models, and under-activated community impetus. Therefore, this study uses ancient tree resources as an entry point, integrating ecological, cultural, and tourism resources systematically through community participation to achieve synergy in conservation, development, and inheritance, thereby promoting comprehensive community revitalization. Based on symbiosis theory, it constructs a practical framework for "Ancient Tree +" rural revitalization, offering new perspectives for research on cultural tourism industry relationships, providing theoretical support for value transformation of ecological resources in traditional villages, and revitalizing existing assets through the design of four "Ancient Tree +" modules, forming a replicable practical paradigm^[3].

1.2 Literature Review

A review reveals that relevant literature mainly falls into three categories. Regarding research on the valorization of ecological resources, scholars generally believe ecological resources are key capital for rural sustainable development^[4]. Valorization pathways include ecotourism^[5], development and branding of ecological products, etc. However, research on systematic value transformation for "living cultural relics" like ancient trees remains insufficient, often focusing on conservation techniques or historical-cultural aspects, with a need to deepen the connection with economic value.

Research on cultural tourism integration emphasizes that the deep integration of local culture and tourism experiences is key to avoiding homogenized competition^[6], providing theoretical support for the "Ancient Tree +" model, which uses ancient trees as the core intellectual property (IP) to connect multi-dimensional integrated innovations. Community participation research indicates that establishing effective interest linkage mechanisms is fundamental for rural revitalization projects to gain endogenous momentum^[7]. In cases such as the Nanjing Tulou and Dehua Xiaohu Village, the community, as the main actor, achieved a transition from "blood transfusion" to "hematopoiesis." This study draws on these experiences, placing "community-enterprise symbiosis" at its core.

Academic research has accumulated significant achievements concerning ecological resource valorization, cultural tourism integration, and community participation, providing references for this study. The marginal contributions of this paper are: unlike existing research which often focuses on a single perspective, this paper conducts systematic model design centered on ancient trees, incorporating ecology, economy, culture, and community into a unified analytical framework to construct a multi-interactive rural revitalization model; it introduces symbiosis theory, using "ecological symbiosis" and "community-enterprise symbiosis" as core mechanisms to explain the mutually beneficial symbiotic relationship between ancient tree resources and rural cultural tourism development, addressing systematic and theoretical gaps in existing research; through field research and in-depth interviews, it refines the implementation pathways for the four modules: "Ancient Tree + Culture," "Ancient Tree + Tourism," "Ancient Tree + Economy," and "Ancient Tree + Ecology," combined with community participation mechanisms, to explore a replicable practical paradigm for rural revitalization.

2. Theoretical Basis

2.1 Core Concept Definitions

(1) Ancient Tree Resources: Refers to trees over one hundred years old, or those under one hundred years but possessing significant historical, cultural, and scientific value. They are not only important forest resources but also "living cultural relics" carrying historical memory, ecological culture, local sentiment, and scientific value. For this study, ancient tree resources, as the characteristic resource of Xiaobu Village, serve as the core ecological capital and cultural symbol for the village's economic development.

(2) Symbiosis Theory: Originating in biology, this theory refers to a stable, interdependent, mutually beneficial relationship formed between different species^[8]. It has since been widely applied in sociology and economics, emphasizing cooperation and coordination among various entities to achieve resource sharing, complementary advantages, and co-evolution. In this study, "symbiosis" is manifested as the balance between ecological protection and economic development, the integration of

traditional culture and modern industries, and the collaboration among multiple entities such as communities and enterprises.

2.2 Application Logic of Symbiosis Theory in Rural Revitalization

Applying symbiosis theory to rural revitalization research represents both a theoretical expansion and a response to practical needs. Rural revitalization involves multiple dimensions including ecological protection, cultural inheritance, economic development, and social governance. A single entity or pathway cannot achieve comprehensive revitalization. Therefore, constructing a symbiotic system involving multi-party participation, interdependence, and co-evolution becomes an inherent requirement for advancing comprehensive rural revitalization.

In this study, “symbiosis” is manifested in three dimensions. The first is value symbiosis, which breaks the traditional binary opposition between “protection” and “development,” emphasizing the synergistic appreciation of ecological, cultural, economic, and social values, thereby achieving the coexistence and mutual promotion of multiple values. The second is industrial symbiosis, which takes ancient tree resources as the core, promotes the integrated development of cultural tourism with agriculture, education, and cultural creativity, and constructs mutually supporting and mutually empowering industrial chains to enhance overall efficiency and resilience against risks. The third is subject symbiosis, which establishes a multi-governance structure characterized by government guidance, community agency, enterprise participation, and tourist interaction. It builds reasonable interest linkage mechanisms to ensure the sharing of development benefits, stimulates endogenous motivation, and promotes the sustainable development of rural areas.

2.3 Research Progress of Symbiosis Theory in Rural Revitalization

In recent years, symbiosis theory has been widely applied in rural tourism research. Based on qualitative research on the evolutionary logic of cultural tourism integration and optimization systems for tourism development, scholars have also engaged in quantitative research involving symbiosis level measurement, tourism symbiosis models, integration spatiotemporal characteristics, and integration development mechanisms, covering multiple fields such as rural tourism, ecotourism, ethnic tourism, red tourism, and the digital economy^[9-12].

It can be seen that the application of symbiosis theory emphasizes different aspects in different fields: rural tourism focuses on villagers' interests and industrial chain symbiosis when constructing rural tourism complexes^[13]; ecotourism focuses on analyzing the coordination between ecology and economy from the perspective of sustainable development goals^[14]; ethnic tourism focuses on the interactive cooperation of symbiotic units in ethnic villages and the integration of cultural resources^[15].

3. Current Situation Analysis of Xiaobu Village

3.1 Overview of the Case Study Area

Sucun Community is located in the western part of Kengkou Subdistrict, Dinghu District, Zhaoqing City, at the northern foot of Lingyang Mountain. It borders Houliyong Minle Bridge to the east, Dachong Community, Duanzhou District to the west, and the Beiling Mountain foothills to the north. National Highway 321 runs through the front of the village, and the Guangzhou-Foshan-Zhaoqing intercity railway enters the Lingyang Mountain Tunnel from the east side of the community, providing convenient transportation. The community covers a total area of 4.5 square kilometers, governing two natural villages: Sucun and Xiaobu.

The community boasts profound historical and cultural heritage, possessing a Qing Dynasty ancient bridge listed in the third national census of cultural relics. There are 13 extant century-old ancient trees (including mango and acacia trees, three with a diameter exceeding 1.2 meters), three century-old ancient wells, and the approximately 200-year-old Chaolong Ancestral Temple (covering about 250 square meters). As of the end of 2023, the community had 468 households and 1,620 residents, including 75 Communist Party members. Regarding industrial development, the Sucun United Economic Cooperative was established, with six subordinate economic cooperatives. Land transfer, factory and shop leasing are the main sources of income. Surrounding enterprises in automotive sales, furniture, logistics, etc., contribute to an annual output value exceeding 200 million yuan. Average annual operating income in the past three years was about 8 million yuan, with a per capita dividend of

approximately 5,000 yuan in 2023.

3.2 Village Investigation

Xiaobu Village, established over 600 years ago, is under the jurisdiction of Kengkou Subdistrict, Dinghu District, Zhaoqing City. Located in the northwest of the Pearl River Delta, it covers an area of 70 mu and lies at the northern foot of Lingyang Mountain. The village is about 20 kilometers from the urban area of Zhaoqing City, with convenient access to major transportation arteries like the Guangzhou-Foshan-Zhaoqing Expressway via surrounding main roads. The village features scattered residential clusters, natural woodlands, and cultivated land, offering excellent ecological conditions, surrounded by rolling hills and clear water bodies. It preserves extensive original vegetation and over a dozen century-old ancient trees. Rich in cultural tourism resources, the village landscape, characterized by harmonious coexistence between humans and nature, lays a solid foundation for rural tourism development.

The village administers several villager groups, with a population of over 400 residents encompassing five surname groups: Li, Luo, He, Jian, and Huang. The livelihoods of villagers are primarily derived from traditional agriculture, migrant work, and local service industries. A substantial number of ancient village structures are preserved within the village, providing spatial opportunities for rural tourism development. Benefiting from the favorable ecological foundation of Dinghu District, Xiaobu Village has prioritized the protection of its natural environment throughout its development, resulting in the formation of a livable village setting, which has also created advantageous conditions for subsequent industrial expansion.

Based on field research, this study systematically sorts out the village's resource endowment and development foundation from six dimensions: traditional architecture, historical culture, ecological environment, population resources, economic industry, and infrastructure. The specific current status is shown in Table 1.

Table 1: Current Situation Analysis of Xiaobu Village

No.	Category	Field Survey of Site Resources
1	Traditional Architecture	The ancient village of Xiaobu Village is well-preserved. With minor renovation and design, it can provide operational premises for the village's tourism development.
2	History and Culture	The ancient village contains numerous ancient buildings and original vegetation, including over ten ancient trees. The tradition of praying for blessings has been continuously preserved within the village, giving it a strong antique charm.
3	Ecological Environment	The village is located at the northern foot of Lingyang Mountain. It has high vegetation coverage and fresh air.
4	Population Resources	The village has a total population of over 400 people, with the villagers of Xiaobu Village serving as the principal actors. Under the leadership of the community, human resources are abundant.
5	Economic Industry	Primarily agricultural, with extensive cultivation of cash crops. The tourism industry has been gradually developing in recent years, demonstrating strong endogenous momentum.
6	Infrastructure	Village infrastructure is relatively well-developed. Some bluestone paths require improvement to enhance the accessibility of the ancient village.

4. Analysis of the Effectiveness of the "Ancient Tree +" Rural Cultural Tourism Symbiosis Model

4.1 Variable Selection and Data Sources

To verify the universality and effectiveness of the "Ancient Tree +" model, this study further conducts empirical tests using panel data from 21 prefecture-level cities in Guangdong Province from 2018 to 2023.

(1) Dependent Variable: Tourist arrivals are selected as the core indicator to measure the level of cultural tourism development. To eliminate dimensional effects and mitigate heteroscedasticity, the natural logarithm is taken, denoted as $(\ln Y)$. Data are sourced from the "Guangdong Statistical

Yearbook" and the statistical bulletins on national economic and social development of each city.

(2) Core Explanatory Variables: The total number of ancient and notable trees (lnX1), the number of ancient tree cultural tourism development projects (lnX2), and the number of national provincial-level intangible cultural heritage items (lnX3) are set. Data are sourced from the Guangdong Provincial Forestry Bureau and the Department of Culture and Tourism.

(3) Control Variables: Expressway density (lnC1), per capita park green space area (lnC2), and per capita GDP (ln C3) are introduced to reflect transportation accessibility, ecological environment quality, and economic development level, respectively. Descriptive statistics for each variable are shown in Table 2.

Table 2: Descriptive Statistics

Variable Name	Observations	Mean	Std. Dev.	Min	Max
lnY (Tourist Arrivals Log)	126	8.941	0.374	8.212	10.021
lnX1 (Ancient Tree Total Count Log)	126	6.447	0.333	5.739	7.158
lnX2 (Ancient Tree Tourism Project Count Log)	126	2.469	0.290	1.792	2.833
lnX3 (Intangible Cultural Heritage Item Count Log)	126	3.552	0.198	3.178	3.784
lnC1 (Expressway Density Log)	126	2.490	0.135	2.256	2.705
lnC2 (Per Capita Park Green Space Area Log)	126	2.835	0.237	2.418	3.388
lnC3 (Per Capita GDP Log)	126	11.097	0.501	10.497	12.292

4.2 Model Specification

To test the impact of "Ancient Tree +" ecological resources on cultural tourism development and explore the interaction effect between ancient tree resources and development projects, this paper constructs a two-way fixed effects model, controlling for city-specific effects and year effects ^[16]:

$$\ln Y_{it} = \alpha_i + \lambda_t + \beta_1 \ln X_{1it} + \beta_2 \ln X_{2it} + \beta_3 \ln X_{3it} + \gamma_1 \ln C_{1it} + \gamma_2 \ln C_{2it} + \gamma_3 \ln C_{3it} + \varepsilon_{it}$$

Where α_i represents city-specific fixed effects, λ_t represents year fixed effects, and ε_{it} is the random error term.

4.3 Correlation Analysis

Correlation coefficients between variables are shown in Table 3. It shows that all variables are positively correlated with tourist arrivals (lnY), indicating their positive influence on tourism development. Among them, per capita GDP lnC3, $r=0.766$ shows the strongest correlation with tourist arrivals, highlighting the core driving role of economic development level in the tourism market. The number of ancient tree cultural tourism development projects lnX3, $r=0.725$ indicates that project-based development of ancient tree resources can effectively translate into tourism appeal. Notably, the correlation coefficient between total ancient tree count (lnX1) and tourist arrivals is only 0.031, much lower than that of development projects (lnX2) at 0.712. This difference strongly confirms that "development, not mere possession" is the key to realizing the value of ancient tree resources. Additionally, the number of ancient tree cultural tourism development projects and the number of intangible cultural heritage items show a high positive correlation $r=0.725$, reflecting the synergistic development characteristics of cultural tourism resources and providing strong support for industrial integration.

Table 3: Variable Correlation Coefficients

Variable	lnY	lnX1	lnX2	lnX3	lnC1	lnC2	lnC3
lnY	1.000						
lnX1	0.031	1.000					
lnX2	0.712	0.407	1.000				
lnX3	0.569	0.495	0.725	1.000			
lnC1	0.613	-0.103	0.465	0.155	1.000		
lnC2	0.188	-0.094	0.225	-0.008	0.552	1.000	
lnC3	0.766	-0.361	0.387	0.244	0.785	0.388	1.000

4.4 Regression and Result Analysis

To further clarify the specific direction and magnitude of the influence of each variable on cultural tourism development, this study conducts a benchmark regression analysis based on a two-way fixed effects model. The results are presented in Table 4.

Table 4: Two-Way Fixed Effects Model Estimation Results

Variable	Coefficient	Std. Error	t-value	p-value
lnX1 (Total Ancient Tree Count)	-6.934	1.498	-4.630	0.000***
lnX2 (Ancient Tree Cultural Tourism Project Count)	2.210	1.087	2.033	0.045**
lnX3 (Intangible Cultural Heritage Item Count)	-0.810	0.682	-1.187	0.238
lnC1 (Expressway Density)	4.083	0.424	9.624	0.000***
lnC2 (Per Capita Park Green Space Area)	0.054	0.107	0.500	0.618
lnC3 (Per Capita GDP)	0.776	0.161	4.825	0.000***
lnX1 × lnX2 (Interaction Term)	-0.317	0.164	-1.931	0.057*
Year Fixed Effects	Controlled			
City Fixed Effects	Controlled			
Observations	126			
R ²	0.96			

Note: ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively.

As shown in the regression results, the core explanatory variables and key control variables have a significant impact on tourist arrivals, and the overall model fit is high, indicating that the selected variables possess strong explanatory power. The detailed analysis is as follows:

(1) Development Transformation Effect of Ancient Tree Resources

The coefficient for lnX1 (total ancient tree count log) is -6.934, significantly negative at the 1% level. This result conversely confirms the core logic of "development transformation": the potential value of ancient tree resources themselves is difficult to release without effective development. Therefore, only through systematic project-based development can resource advantages be truly transformed into tourism development momentum.

(2) Significant Driving Role of Ancient Tree Development Projects

The coefficient for lnX2 (ancient tree cultural tourism development project count log) is 2.210, significantly positive at the 5% level, indicating that for every 1% increase in the number of ancient tree cultural tourism development projects, tourist arrivals increase by an average of approximately 2.21%. This result fully validates the core proposition of symbiosis theory: as characteristic ecological resources, ancient trees can be effectively transformed into tourism appeal through project-based development, becoming an important engine for rural cultural tourism development.

(3) Positive Contribution of Key Supporting Factors

The coefficient for expressway density log (lnC1) is 4.083, significantly positive at the 1% level, indicating that transportation infrastructure has a strong driving effect on tourism development. The coefficient for per capita GDP log (lnC3) is 0.776, also significantly positive at the 1% level, suggesting that the economic development level is an important foundational guarantee for tourism development. Although the coefficient for per capita park green space area log (lnC2) is not significant, its potential impact warrants further investigation alongside other ecological factors.

(4) Outstanding Overall Explanatory Power of the Model

The model's R² reaches 0.96, indicating that the selected variables explain over 96% of the variation in tourist arrivals, demonstrating a high goodness-of-fit. All year dummy variables are significant, fully validating the scientific rigor and appropriateness of the model specification.

4.5 Interaction Effect Analysis

The coefficient for the interaction term (lnX1 × lnX2) is -0.317, significantly negative at the 10% level. This finding profoundly reveals the synergistic complementary relationship between ancient tree resource endowment and development projects, providing important insights for adapting ancient tree

cultural tourism development to local conditions.

Mechanism Explanation: When ancient tree resources are abundant, the marginal effect of development projects exhibits characteristics of moderate adjustment, reflecting the inherent logic that resource-rich areas need to prioritize development quality over quantity expansion. Conversely, in areas relatively scarce in ancient tree resources, the positive effect of development projects is more pronounced, suggesting that these areas can better leverage differentiated advantages to create distinctive cultural tourism products.

This result reveals the "precise policy implementation" orientation for ancient tree cultural tourism development: ancient tree resource-rich areas should not simply stack development projects but should pursue a path of high-quality, differentiated development under the premise of prioritizing protection, avoiding homogenized competition to achieve high-quality development. Meanwhile, areas with relatively scarce resources can fully leverage their late-mover advantage, transforming limited ancient tree resources into unique cultural tourism brands through precise positioning and characteristic creation, generating stronger marginal benefits. This finding provides a scientific basis for formulating differentiated development strategies for areas with different resource endowments, fully embodying the practical wisdom of "adapting measures to local conditions and providing classified guidance." Interpreted from an elasticity perspective: the total effect of ancient tree development projects on tourist arrivals is:

$$\frac{\partial \ln Y}{\partial \ln X_2} = 2.210 - 0.317 \times \ln X_1$$

When $\ln X_1$ takes its mean value of 6.447, the marginal effect is $2.210 - 0.317 \times 6.447 = 2.210 - 2.043 = 0.167$, still positive. However, when $\ln X_1$ exceeds 6.97 (i.e., the total number of ancient and notable trees exceeds 1060), the marginal effect turns negative, suggesting that areas with overly abundant resources need to proceed with development cautiously.

4.6 Empirical Verification Analysis of Symbiosis Mechanisms

The empirical results above systematically reveal three inherent mechanisms of "Ancient Tree +" cultural tourism symbiotic development, providing solid empirical evidence for understanding the value transformation of ancient tree resources:

(1) **Development Transformation Mechanism.** The significantly negative coefficient for total ancient tree count ($\ln X_1$) contrasts with the significantly positive coefficient for development projects ($\ln X_2$), clearly revealing that the inherent value of ancient tree resources needs to be effectively released through project-based development. Ancient trees, as valuable ecological capital, follow an evolutionary path of "activation - release - appreciation" in their value transformation, embodying the activation effect of symbiotic units achieving value co-creation through synergistic development. This mechanism suggests that while resource endowment is fundamental, it is only through scientific development that it can be transformed into real productive forces.

(2) **Resource Optimization Mechanism.** The significantly negative coefficient for the interaction term ($\ln X_1 \times \ln X_2$) reveals a delicate substitution relationship between ancient tree resources and development projects. This finding does not negate the advantage of resource abundance but guides us to focus more on development quality and differentiation in resource-rich areas, pursuing a path of high-quality, connotative development. In areas with relatively scarce resources, the advantage of "few but refined" can be fully leveraged to create distinctive cultural tourism brands. This mechanism fully embodies the wisdom of precise policy implementation and adaptation to local conditions.

(3) **Environmental Support Mechanism.** The significant positive coefficients for expressway density ($\ln C_1$) and per capita GDP ($\ln C_3$) fully confirm the solid supporting role of transportation infrastructure and economic development levels for ancient tree cultural tourism development. This finding indicates that superior transportation conditions and a favorable economic foundation can effectively amplify the positive effects of ancient tree development projects, providing an important environmental guarantee for the symbiotic development of ancient tree cultural tourism, reflecting the foundational supporting function of the symbiotic environment.

5. Construction of the "Ancient Tree +" Rural Cultural Tourism Symbiosis Model

5.1 Implementation Methods

The rural revitalization of Xiaobu Village community is centered on "Symbiosis Theory," implementing the "Ecological Symbiosis" model and the "Community-Enterprise Symbiosis" model, clarifying the empowerment pathway of ancient trees as ecological and cultural carriers. By closely integrating ancient tree resources with rural cultural tourism development, the four modules of "Ancient Tree + Culture," "Ancient Tree + Economy," "Ancient Tree + Ecology," and "Ancient Tree + Tourism" are formed, achieving "mutualistic symbiosis."

Field investigation of Xiaobu Village revealed over 20 century-old ancient trees distributed throughout the village, mostly *Elaeocarpus* species, concentrated on the mid-slope of the hill behind the village. The oldest banyan tree in the village is over 600 years old. Protection of the ancient trees in the village is relatively weak. In-depth interviews with villagers, village cadres, and township officials revealed that only the over-600-year-old banyan tree receives attention from the community and residents; villagers and cadres have not fully realized the advantages of Xiaobu Village's ecological resources. The naturally abundant ancient tree resources provide a focus for implementing the ecological symbiosis model in Xiaobu Village.

5.2 Implementation Pathways

5.2.1 "Ancient Tree + Tourism" Model

"Ancient Tree + Tourism" is the development focus for Xiaobu Village, leveraging abundant ancient tree resources to develop sightseeing and experiential tourism. Interactive games like "Ancient Tree Blessing" and "Ecological Exploration" are designed for young people. Themed tour routes such as "Ancient Tree Roots Seeking" and "Nostalgia Memory" are offered for middle-aged and elderly tourists. Festival activities like the "Ancient Tree Blessing Festival" and "Ecological Culture Workshop" are held, inviting intangible cultural heritage inheritors to participate alongside villagers, showcasing ancient tree culture and rural folk customs. Simultaneously, AR (Augmented Reality) technology is utilized, allowing visitors to scan QR codes to learn about the growth history and cultural significance of the ancient trees. Leisure facilities like tea houses and viewing platforms are set up near the ancient trees to enhance visitor engagement and experience, establishing "Ancient Tree + Tourism" as a distinctive brand for Xiaobu Village and promoting the sustainable development of rural tourism.

5.2.2 "Ancient Tree + Economy" Model

The "Ancient Tree + Economy" model combines ancient tree resources with the ecological industry chain, aiming to generate direct economic benefits for Xiaobu Village while achieving a balance between ecological protection and economic development. In terms of derivative product development, as most ancient trees in the village are *Elaeocarpus* species, the jam made from their fruits, which is sweet and sour, is a seasonal product loved by villagers. This can be leveraged to create a distinctive brand for Xiaobu Village. Concurrently, combining ancient tree tourism resources, cultural and creative products such as ancient tree-themed postcards and handicrafts are designed to enrich the cultural tourism consumption scene. In terms of ecological study tours, partnerships with schools and educational institutions in Dinghu District are established to develop "Ancient Tree Ecological Study Courses," covering knowledge of ancient tree protection, principles of ecological balance, traditional cultural experiences, and other content, attracting student participation.

5.2.3 "Ancient Tree + Culture" Model

A new pattern for cultural tourism is opened by integrating the traditional culture of worshipping ancient trees. Specifically, Xiaobu Village closely combines ancient trees with local traditional worship culture, effectively protecting this natural heritage while infusing it with profound cultural connotations. The ancient banyan tree in the village, revered as a sacred symbol by villagers, carries centuries of blessings and aspirations. During important festivals or celebratory occasions, villagers gather under the banyan tree to hold solemn and simple worship ceremonies, praying for family happiness and career success. This unique worship culture not only deepens villagers' profound affection for the ancient trees but has also become a significant attraction for tourists.

5.2.4 "Ancient Tree + Ecology" Model

While developing Xiaobu Village's tourism economy, ecological environment protection is also

strengthened. Protection zones for ancient trees are designated, and ecological red lines are established to ensure the growth environment of the ancient trees is not compromised. Simultaneously, green tourism concepts are promoted, encouraging tourists to participate in ecological protection activities such as tree planting and garbage cleanup, collectively maintaining the ecological environment of Xiaobu Village. Furthermore, utilizing the natural landscapes surrounding the ancient trees, ecological trails and viewing platforms are created, allowing visitors to appreciate the scenery while deeply understanding the importance of ecological protection. These initiatives not only enhance the tourism quality of Xiaobu Village but also create more employment opportunities and income sources for local villagers, achieving a win-win situation for the economy and ecology.

5.2.5 Community Symbiosis

"Community-Enterprise Symbiosis" involves cooperation between community governance and enterprise development. Community participation is the core of the "Ancient Tree +" cultural tourism symbiosis model. By establishing a co-governance mechanism, the interests of various parties are coordinated to ensure the sustainability of cultural tourism development. The community and enterprises jointly invest in the protection and utilization of ancient tree resources, forming a community of interests. Enterprises are responsible for the development and market promotion of ancient tree derivative products, while the community is responsible for the daily management and maintenance of ancient tree resources, ensuring their healthy growth. Simultaneously, the community actively cooperates with enterprises to carry out eco-tourism activities, attracting tourists to view the ancient trees and experience rural culture, thereby driving local economic development.

6. Conclusion and Outlook

6.1 Research Conclusions

Rural tourism is a key link and important support in the rural revitalization strategy. It serves as a vital driving force for integrating various industries, enhancing diversified rural development, and represents a crucial breakthrough for achieving industrial prosperity in rural areas. Fully leveraging the important role of "Ancient Tree +" in rural tourism development and correctly handling this unique resource play a significant role in broadening channels for increasing farmers' income, improving their quality of life, narrowing the urban-rural economic gap, and attracting talent back to rural areas. Through systematic theoretical analysis and empirical investigation, this study draws the following important conclusions:

(1) The ancient tree resources of Xiaobu Village possess unique development value. Over 20 century-old ancient trees exist within the village, including a banyan tree over 600 years old. These trees hold not only ecological value but also embody rich cultures of worship and blessing, laying a solid cultural foundation for developing the cultural tourism industry.

(2) Symbiosis theory is applicable for guiding the development of ancient tree resources. This study innovatively constructs a development model driven by the dual mechanisms of "Ecological Symbiosis" and "Community-Enterprise Symbiosis," which can effectively coordinate the relationship between ecological protection and economic development, ensuring mutual benefits for multiple stakeholders like the community and enterprises through reasonable interest distribution mechanisms.

(3) Empirical tests based on panel data from 21 prefecture-level cities in Guangdong Province reveal that for every 1% increase in the number of ancient tree cultural tourism development projects, tourist arrivals increase by an average of approximately 2.21%. Moreover, a significant substitution effect exists between ancient tree resources and development projects. When the total number of ancient and notable trees exceeds 1,060, the marginal effect of development projects turns negative, providing quantitative decision-making basis for areas rich in ancient tree resources.

(4) The implementation pathways of the four modules are feasible. The "Ancient Tree + Culture" module enhances cultural appeal by exploring blessing culture and organizing oral histories. The "Ancient Tree + Tourism" module designs themed tour routes and experiential activities. The "Ancient Tree + Economy" module develops specialty products and study courses. The "Ancient Tree + Ecology" module achieves sustainable development by designating protection zones and establishing protection systems.

(5) Community participation is the key to the success of the model. Establishing effective interest linkage mechanisms, enabling villagers to tangibly benefit from tourism operations and employment,

and making them the subjects rather than objects of development, constitutes the foundation for ensuring project sustainability.

6.2 Research Outlook

Future research concerning strategies for community resident participation in the rural tourism development of Xiaobu Village should focus on enhancing the depth and breadth of research to more comprehensively understand the dynamics of resident participation and its influencing factors. Based on the conclusions of this study, future research can be further deepened in the following aspects:

(1) There is a need to strengthen quantitative research. Future studies could collect specific data such as tourist numbers and economic benefits, using statistical methods to quantitatively analyze the contribution of ancient tree cultural tourism to the rural economy, providing more precise data support for policy formulation.

(2) Attention should be paid to the application of digital technology. Exploring the use of digital technologies such as AR and VR to enhance tourist experiences, and expanding the dissemination channels and experiential methods of ancient tree blessing culture through constructing digital archives and developing online experience platforms, is recommended.

(3) It is necessary to deepen industrial integration development. Future efforts should strengthen linkage development with local agritainment, upgrade specialty homestays, and create regional tourism routes to achieve scale effects. Simultaneously, new formats like "Ancient Tree + Wellness" and "Ancient Tree + Cultural Creativity" can be explored to extend the industrial chain.

(4) Community participation mechanisms need improvement. Further exploration of various forms of shareholding cooperation, innovation in interest distribution methods, and establishment of sound long-term development mechanisms are required to ensure the benefits of rural revitalization reach the majority of villagers.

References

- [1] Central Committee of the Communist Party of China, State Council. *Opinions on Implementing the Rural Revitalization Strategy* [Z]. 2018.
- [2] General Office of the State Council. *Several Measures for Further Cultivating New Growth Points and Prosperity of Cultural and Tourism Consumption* [Z]. 2025.
- [3] Wang Xiuwei. *From Interaction to Symbiosis: The Structural Dimension, Evolutionary Logic, and Development Trend of Cultural and Tourism Integration* [J]. *Journal of Southwest Minzu University (Humanities and Social Sciences Edition)*, 2021, 42(05): 29-36.
- [4] Wen Tiejun, Luo Shixuan, Dong Xiaodan, et al. *Innovation in the Value Realization Form of Ecological Resources in the Context of Rural Revitalization* [J]. *China Soft Science*, 2018, (12): 1-7.
- [5] Jiang Rongsheng, Zeng Qihong, Yang Xiaojing, et al. *Study on the Evaluation System of Ancient and Notable Tree Tourism Resources* [J]. *Issues in Forestry Economics*, 2008, 28(06): 497-500.
- [6] Wang Haixia. *Revitalization and Protection of Rural Landscape Heritage in the Context of Rural Revitalization Strategy: Taking the Development of Ancient Villages in Xinchang along the Tang Poetry Road in Eastern Zhejiang as an Example* [J]. *Popular Literature and Art*, 2020, (10): 250-251.
- [7] Sun Jiuxia. *Knowledge Spillover from Anthropology to Tourism Research* [J]. *Tourism Guide*, 2019, 3(05): 1-14.
- [8] Yang Lingli. *The Application of Symbiosis Theory in the Field of Social Sciences* [J]. *Social Science Forum*, 2010, (16): 149-157.
- [9] Lei Ming, Wang Yuqing. *Integration and Symbiosis: Operation Mechanism and Model of Rural Agricultural, Cultural, and Tourism Industry Integration: Based on Field Investigations of Three Typical Villages* [J]. *Journal of China Agricultural University (Social Sciences Edition)*, 2022, 39(06): 20-36.
- [10] Zhou Meijing, Xu Chunxiao. *Construction and Application of the Evaluation Index System for the Symbiotic Development Level of Red Tourism: A Case Study of Shaoshan* [J]. *Tourism Tribune*, 2019, 34(09): 127-144.
- [11] Zhang Jiaqi, Yu Xingjie, Zhu Xuanbo, et al. *Research on the Tourism Symbiosis Model of Ethnic Traditional Villages in the Context of Rural Revitalization: A Case Study of Xiangxi Prefecture, Hunan Province* [J]. *Areal Research and Development*, 2023, 42(02): 100-105.
- [12] Ma Binbin, Dou Yuanyuan, He Shuqi, et al. *Spatiotemporal Characteristics and Driving*

Mechanisms of the Integration Development of Digital Economy and Tourism Industry in China [J]. Economic Geography, 2023, 43(06): 192-201.

[13] Yang Guihua. *Research on the Goal Model of Sustainable Development in Ecotourism [C] // Chinese Ecological Society. Ecology Tourism Development: Proceedings of the Second Western China Ecotourism Development Forum. School of Business Administration and Tourism Management, Yunnan University; 2004: 21-26.*

[14] Hu Hai, Zhuang Tianhui. *The Integration Development of Rural Industries from the Perspective of Symbiosis Theory: Symbiosis Mechanisms, Realistic Dilemmas, and Promotion Strategies [J]. Issues in Agricultural Economy, 2020, (08): 68-76.*

[15] Fu Linlin, Huang Zuhui, Peng Wenhuan. *The Mechanism and Promotion Path of "Mutualistic Symbiosis" among Business Entities in Rural Industrial Integration [J]. Journal of Nanjing Agricultural University (Social Sciences Edition), 2022, 22(06): 69-77.*

[16] Liu Keyan. *How Does Provincial Digital and Intelligent Development Affect Household Tutoring Expenditure? An Empirical Study Based on CFPS Panel Data [J]. China Collective Economy, 2026, (10): 122-127.*