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Theoretical Logic and Implementation Path of Green Finance Empowering High-Quality Development of Cultural and Tourism Industry

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ABSTRACT

Under the dual demands of the global carbon neutrality goal and the green transformation of the cultural and tourism industry, this paper focuses on the theoretical logic and implementation path of green finance empowering the cultural and tourism industry, aiming to resolve the deep-seated contradictions between ecological protection and industrial development. Based on the theory of sustainable development, financial intermediation theory, and industrial ecology theory, the study constructs a "policy-market-technology" three-dimensional collaborative theoretical framework, and reveals the internal connections between green finance and the cultural and tourism industry in ecological attribute coupling, externality governance, and consumption demand adaptation. By analyzing practical dilemmas such as insufficient policy adaptability, market supply-demand mismatch, and lagging technology application, three paths are proposed: (1) Top-level design: Establish a "cultural tourism-ecology-finance" collaborative policy system, refine industry green finance standards, and innovate the linkage mode between ecological compensation and financial instruments; (2) Market-driven: Develop green financial products exclusive to cultural and tourism, construct a mechanism linking ESG ratings with credit, and promote the connection between carbon markets and cultural tourism carbon sinks; (3) Technology embedding: Use digital technology to empower the whole life cycle management, build a green technology cost-sharing model, and cultivate interdisciplinary compound talents. The research shows that green finance can realize the manifestation of ecological value, efficient capital allocation, and sustainable industrial transformation through the three-dimensional collaborative mechanism, but it needs to break through institutional barriers and technical bottlenecks. Future research can deepen cross-cultural comparisons and the dynamic correction of theoretical models by digital transformation, so as to provide Chinese solutions for global sustainable tourism development.

KEYWORDS

Green finance; Cultura and tourism industry; High-quality development; Theoretical logic; Collaborative mechanism

1. INTRODUCTION

Against the backdrop of accelerating global climate governance, the goal of "carbon neutrality" has become a core orientation for economic and social development in various countries. According to data from the World Bank, carbon emissions from the tourism industry account for 8% of the global total. As a resource-intensive industry, the traditional development model of the cultural and tourism industry is facing bottlenecks in ecological carrying capacity and pressure for sustainable development. In this context, green finance, as a core institutional arrangement to guide capital flow into low-carbon fields, its application in the cultural and tourism industry is not only an important starting point for implementing the "dual carbon" strategy but also a key driving force for promoting industrial upgrading. From a theoretical perspective, existing literature mostly focuses on the transformation mechanism of green finance on traditional high-carbon industries (such as energy and manufacturing), but insufficient attention is paid to special fields like the cultural and tourism industry that have both ecological attributes and cultural value. This makes it face unique theoretical dilemmas in the process of being empowered by green finance—how to balance the public attribute of ecological protection and the market attribute of industrial development? How to quantify the environmental benefits of cultural and tourism projects and realize cost internalization? From a practical perspective, there is an urgent practical demand for green finance to empower the cultural and tourism industry. According to a survey by the China Tourism Academy, 78% of cultural and tourism enterprises believe that the threshold for green financing is too high, and 56% of scenic spots lack professional environmental risk management capabilities. To solve these problems, it is necessary to build a systematic solution from three dimensions: policy design, market innovation, and technology application, so as to provide theoretical guidance and practical paths for the high-quality development of the cultural and tourism industry.

With the rise of ESG investment, domestic research has focused on the construction of policy frameworks, such as the "five pillars" of the green financial system proposed by Ma Jun (2015), and Wang Yao's (2020) analysis of the coupling mechanism between the carbon financial market and industrial transformation. These studies have revealed the common laws of green finance empowering industries: guiding capital allocation through policy incentives, realizing cost sharing with the help of market tools, and improving efficiency relying on technological innovation. However, the unique attributes of the cultural and tourism industry make the above common laws face adaptive adjustments. First, ecological dependence leads to the spatial spillover of environmental costs. Second, the irreversibility of cultural heritage requires the establishment of stricter risk prevention and control mechanisms, while the traditional mortgage guarantee model is difficult to adapt to the light asset characteristics of cultural and tourism projects. Third, the characteristics of the experience economy result in a gap between green consumption willingness and payment capacity, which requires activating market demand through financial innovation (such as green consumer credit).

Existing research has not yet formed a theoretical system of green finance empowering the cultural and tourism industry, which is prominently reflected in three contradictions: (1) The contradiction of policy adaptability: Current green financial standards (such as the "Catalogue of Projects Supported by Green Bonds") focus on industrial emission reduction and lack subdivided indicators for cultural and tourism projects, leading to the difficulty in "green identification". (2) The contradiction of market effectiveness: The long-term income of cultural and tourism projects does not match the short-term assessment requirements of financial institutions, so it is urgent to develop financial products that are consistent with the cash flow characteristics of cultural and tourism. (3) The contradiction of technology embedding: The application of technologies such as blockchain and the Internet of Things in tracking the carbon footprint of cultural and tourism is lagging behind, resulting in a lack of data support for environmental benefit accounting.

2. THEORETICAL LOGIC OF GREEN FINANCE EMPOWERING THE CULTURAL AND TOURISM INDUSTRY

(1) Inherent Relevance between Green Finance and the Cultural and Tourism Industry

The inherent relevance between green finance and the cultural and tourism industry is rooted in their deep coupling in the pursuit of ecological value, economic operation logic, and realization of social functions. Specifically, it is reflected in the natural integration between the ecological attributes of the cultural and tourism industry and the environmental goals of green finance, as well as the organic unity between the externality characteristics of the cultural and tourism economy and the public goods supply function of green finance.

From the perspective of the coupling of ecological attributes and environmental goals, the core competitiveness of the cultural and tourism industry stems from the integrity of natural ecological landscapes and cultural heritage resources, and its development is highly dependent on the healthy survival of ecosystems. The theoretical essence of this coupling is to incorporate ecological capital into the production function of industrial development, realize the market-oriented pricing of ecological value through green financial instruments, and thereby solve the binary opposition between "protection and development".

From the perspective of the alignment between economic externality and public goods supply function, the environmental impact of the cultural and tourism industry has significant characteristics of spatial spillover and intergenerational externality. Over-development of scenic spots may lead to negative externalities such as vegetation destruction and commercial alienation of cultural heritage, while actions such as ecological restoration and cultural inheritance generate positive externalities such as air purification and the continuation of civilization. Both are difficult to achieve cost sharing or benefit capture through traditional market mechanisms.

The theoretical essence of this inherent relevance is to incorporate the cultural and tourism industry into the overall framework of the ecological economic system. Through institutional innovation in green finance, it realizes the manifestation of ecological value, the internalization of economic externalities, and the marketization of public goods supply. It not only reveals that the sustainable development of the cultural and tourism industry requires green finance to solve the capital constraints and market failure problems in ecological protection but also lays the logical starting point for subsequent theoretical analysis, ultimately achieving a dynamic balance among ecological, economic, and social benefits.

(2) Theoretical Basis for Green Finance Empowerment

The theoretical basis for green finance empowering the cultural and tourism industry is rooted in the synergistic support of interdisciplinary theories. It constructs a complete logical chain of "goal-mechanism-evolution" through the goal guidance of sustainable development theory, the mechanism design of financial intermediation theory, and the systematic thinking of industrial ecology theory, providing a scientific theoretical explanation framework for the in-depth integration of the two.

Sustainable development theory establishes the value orientation of three-dimensional goal balance for green finance empowerment. This theory requires the cultural and tourism industry to achieve a dynamic balance among environmental, economic, and social benefits, opposing short-sighted growth models that sacrifice ecology or culture. For example, the "homestay green renovation loan" in Xijiang Qianhu Miao Village, Guizhou, not only preserves the traditional architectural style of the Miao nationality (cultural benefit) but also increases the annual income of local villagers by 32,000 yuan (economic benefit). At the same time, it improves the village environment through a centralized sewage treatment system (environmental benefit), reflecting the coordinated realization of the three-dimensional goals.

Financial intermediation theory provides an innovative path for capital allocation mechanisms for green finance empowerment. In response to the characteristics of the cultural and tourism industry, such as light assets, long cycles, and information asymmetry, green finance solves the financing dilemma through two major mechanisms: first, the signal transmission mechanism, which requires enterprises to disclose environmental information and introduce third-party certification (such as GRESB green tourism assessment) to reduce information barriers between investors and financiers. Second, the risk-sharing mechanism, which mitigates risks through tools such as government guarantee funds and green insurance.

Industrial ecology theory constructs a thinking paradigm of systematic symbiotic evolution for green finance empowerment. This theory regards green finance and the cultural and tourism industry as interdependent ecosystems, and the two achieve collaborative evolution through the exchange of "material flow (capital) - energy flow (information) - information flow (technology)". In the initial stage of symbiosis, policy-driven is the main driving force, forming a one-way empowerment of "institutional pressure - industrial response". With the maturity of market mechanisms, it enters a two-way interaction stage: financial institutions innovate "ecological value grading loans" according to the ecological indicators of scenic spots, and enterprises feed back the design of financial products with emission reduction benefits, forming a positive cycle of "capital support - industrial upgrading - income improvement - capital return". In the mature stage, blockchain technology realizes the whole-process traceability of cultural and tourism carbon footprints, and smart contracts automatically execute the transfer of ecological compensation funds, making industry-finance collaboration shift from "human intervention" to "intelligent self-adaptation".

The three theories complement and synergize with each other: sustainable development theory clarifies the value goal of "why to empower", financial intermediation theory solves the mechanism problem of "how to empower", and industrial ecology theory reveals the systematic law of "empowerment evolution", providing a Chinese theoretical solution for global sustainable tourism development.

(3) Core Mechanisms of Green Finance Empowerment

The core mechanisms of green finance empowering the cultural and tourism industry form a three-dimensional institutional framework through three major mechanisms: motivation, constraint, and collaboration. Their theoretical essence lies in solving the problems of market failure and system synergy through institutional innovation, promoting the industry to evolve towards low-carbon, intensive, and intelligent development.

The motivation mechanism takes policy incentives and market demand as the dual driving engines. Policy incentives reduce the cost of green transformation through institutional supply (such as the carbon emission reduction tools created by the People's Bank of China) [1]. Market demand, on the other hand, forces industrial transformation through the consumer side. Ctrip data shows that in 2024, the search volume for "zero-carbon tourism routes" increased by 320% year-on-year, and 63% of tourists are willing to pay extra for staying in low-carbon hotels. This demand upgrade has prompted the "carbon-neutral sightseeing cable car revenue ABS" issued by scenic spots to be oversubscribed, with a coupon rate 0.8 percentage points lower than similar products [2].

The constraint mechanism takes environmental cost internalization and ESG risk management as a double defense line. Environmental cost internalization incorporates externalities into corporate accounting through carbon pricing mechanisms. Financial institutions set green thresholds through ESG risk management systems. The cultural and tourism ESG rating system launched by third-party rating agencies shows that in 2024, the proportion of A-level and above ratings of listed commercial banks in China reached 42.86%, significantly higher than the average level of listed companies [3].

The collaboration mechanism takes financial tool innovation and technological upgrading as the two-way enabling bond. Financial tool innovation is precisely adapted to the characteristics of the cultural and tourism industry, transforming ecological resources into financing capabilities. Technological upgrading improves the efficiency of empowerment, increasing the efficiency of green credit approval by 50% and shortening the financing docking cycle from 45 days to 15 days [4].

The three mechanisms form a systematic synergy through mutual nesting. This three-dimensional mechanism design, in essence, constructs a long-term governance system for the green transformation of the cultural and tourism industry through the coordination of "the visible hand of the government, the invisible hand of the market, and the hand of technological innovation", providing a replicable mechanism paradigm for industrial upgrading under the "dual carbon" goals.

3. PRACTICAL DILEMMAS OF GREEN FINANCE EMPOWERING THE CULTURAL AND TOURISM INDUSTRY

(1) Contradictions in the Policy Dimension

The dual contradictions in the policy dimension essentially lie in the fact that standardized green financial rules are difficult to adapt to the ecological complexity and cultural uniqueness of the cultural and tourism industry, while the short-term orientation of performance assessment weakens the sustainability of policy implementation. Such contradictions not only lead to the misallocation of green financial resources but also may give rise to the breeding of "pseudo-green" projects, deviating from the essential goal of green finance.

Green finance faces significant policy-dimensional contradictions in the process of empowering the cultural and tourism industry, mainly manifested in the insufficient adaptability between green financial standards and the characteristics of the cultural and tourism industry, as well as the conflict between local governments' performance goals and long-term ecological benefits. These two contradictions restrict the actual effectiveness of policy tools and urgently require systematic institutional innovation. Data shows that among the green bonds issued nationwide in 2023, cultural and tourism-related projects accounted for less than 3% [5]. In the current local government assessment system, the weight of short-term economic indicators such as GDP growth and tourism revenue exceeds 60%, while the assessment of long-term benefit indicators such as ecological protection investment and carbon emission reduction accounts for less than 15% [6].

(2) Obstacles in the Market Dimension

The market-dimensional obstacles for green finance to empower the cultural and tourism industry are concentrated in the lack of a green value evaluation system and the structural mismatch between supply and demand. Together, they make it difficult for the market mechanism to effectively exert its resource allocation function, forming a vicious circle of "difficulty in corporate financing—capital reluctance to invest".

The essence of market-dimensional obstacles is the structural imbalance between asset characteristics and financial instruments: the "ecological and cultural assets" of cultural and tourism projects lack a standardized valuation system, making it difficult to enter the mainstream financial market; and there is a fundamental conflict between the risk preference and assessment mechanisms of financial institutions and the long-cycle nature of the industry. Such obstacles not only result in low penetration of green finance [7] but also may inhibit industrial innovation.

(3) Limitations in the Technical Dimension

The technical-dimensional limitations of green finance empowering the cultural and tourism industry are prominently reflected in the cost-benefit imbalance of low-carbon technology application and the lag in the integration of digital technology empowerment. Together, they form a "two-way shackle" for technological innovation and industrial upgrading, restricting the accuracy and efficiency of green financial tools.

The essence of technical-dimensional limitations is the insufficient industrial adaptability of technological innovation and the lack of cross-field collaboration mechanisms: low-carbon technologies have not yet developed low-cost, highly adaptable solutions for cultural and tourism scenarios. Such limitations directly lead to green finance showing the characteristics of "high threshold and low efficiency" in the cultural and tourism field.

4. PATH CONSTRUCTION FOR GREEN FINANCE EMPOWERING THE CULTURAL AND TOURISM INDUSTRY

(1) Top-Level Design: Policy Coordination Path

The top-level design for green finance empowering the cultural and tourism industry needs to take policy coordination as the core breakthrough point. By building a cross-field institutional system, refining industry-specific standards, and innovating ecological value realization mechanisms, a policy framework featuring "unified goals, adaptive rules, and linked mechanisms" will be formed to provide systematic institutional guarantees for the green transformation of the industry.

Formulating green finance classification standards for the cultural and tourism industry is a key measure to solve the problem of "difficulty in green identification". For eco-tourism projects, carbon sink increments, investment in biodiversity protection, etc., can be included in the assessment; for cultural heritage projects, assessment dimensions such as the living inheritance of intangible cultural heritage and the protective utilization of ancient buildings can be added. Standardized classification guidelines will guide financial institutions to accurately identify the green attributes of cultural and tourism projects, addressing the core pain point of "lack of basis for financing".

Exploring the linkage mode between ecological compensation mechanisms and green financial instruments is the core path to realize the marketization of ecological value. Relying on policy tools such as carbon trading and ecological compensation, the ecological benefits of cultural and tourism projects can be transformed into financible assets. In addition, the linkage mechanism of "ecological bonds + cultural and tourism income" can be explored, which binds cash flows such as scenic spot tickets and cultural and creative income with the solvency of bonds, attracting social capital to participate in long-cycle ecological protection projects.

(2) Market-Driven: Financial Innovation Path

The market-driven path for green finance to empower the cultural and tourism industry takes financial innovation as the core engine. Through measures such as developing exclusive financial products, building ESG-linked mechanisms, and promoting the connection with carbon markets, it activates the vitality of market entities, realizes the precise docking of green capital and the cultural and tourism industry, and forms a market-oriented empowerment closed loop of "demand orientation - tool innovation - value realization".

Developing green financial products exclusive to cultural and tourism: In view of the characteristics of cultural and tourism projects such as light assets, long cycles, and stable returns, it is necessary to design financial tools that adapt to their cash flow characteristics. For example, innovating "green consumption installment products" that closely align with the dual value attributes of "ecology + culture", transforming non-tradable resource endowments into circulable financial assets.

By establishing an exclusive ESG rating system for the cultural and tourism industry covering environment, society, and governance, the rating results are directly linked to enterprises' financing costs and credit lines. This enables cultural and tourism enterprises to transform green development from a "policy requirement" into an "endogenous demand", forming a positive cycle.

Building a green financial market system in line with the laws of the cultural and tourism industry. Through the spontaneous role of market mechanisms, the optimal allocation of green capital and the value appreciation of the cultural and tourism industry are realized, ultimately forming a diversified green financing pattern with government guidance, market leadership, and social participation.

(3) Technology Embedding: Capacity Improvement Path

The technology embedding path for green finance to empower the cultural and tourism industry takes digital innovation and capacity building as the core, constructing a capacity improvement system of "technology-driven - cost-controllable - talent-supported" to provide sustainable technical momentum for the green transformation of the industry.

By introducing technologies such as blockchain, the Internet of Things, and big data, the entire chain of cultural and tourism projects from planning and design to operation and maintenance can be greened. In addition, artificial intelligence can recommend "low-carbon renovation installment loans" or "carbon sink income right pledge financing" to improve the efficiency of capital allocation.

Cultivating interdisciplinary talents with expertise in "finance + cultural tourism + environmental science" is a sustainable guarantee for technology embedding. The depth of technological empowerment depends on the integrated application of cross-disciplinary knowledge, so it is necessary to build a multi-level talent training system; the industry can rely on associations to organize "green technology application workshops" to shorten the cognitive gap in technology implementation. These efforts jointly address the current pain point in the cultural and tourism industry where "those who understand green technology do not understand finance, and those who understand finance do not understand industrial characteristics", providing human resources support for the in-depth integration of technology and finance.

Enhancing the green governance capacity of the cultural and tourism industry through digital means, reducing the threshold for technology application through mechanism innovation, and strengthening the endogenous motivation for transformation through talent reserves, so that the cultural and tourism industry can achieve green and high-quality development at lower costs and higher efficiency, providing Chinese technical solutions for global sustainable tourism.

5. CONCLUSIONS AND PROSPECTS

(1) Research Conclusions

This study systematically explores the theoretical logic, practical dilemmas, and implementation paths of green finance empowering the high-quality development of the cultural and tourism industry, and draws the following core conclusions:

The essence of green finance empowering the cultural and tourism industry lies in breaking through institutional barriers, market failures, and technical bottlenecks in industrial transformation through a "policy-market-technology" three-dimensional collaborative mechanism, so as to promote the dynamic balance of ecological value, economic value, and social value.

Policy coordination is the institutional guarantee: By establishing a "cultural tourism-ecology-finance" trinity policy system, refining green finance classification standards for the cultural and tourism industry, and exploring the linkage mode between ecological compensation and financial instruments, the problem of insufficient adaptability between current green financial standards and the characteristics of the cultural and tourism industry is solved, providing a top-level design framework for industrial transformation.

Technology embedding is the efficiency support: By means of green digital technologies (such as blockchain and the Internet of Things) to empower the whole life cycle management of cultural and tourism projects, constructing cost-sharing models for technology application, and cultivating interdisciplinary talents, the problems of cost-benefit imbalance in low-carbon technology application and lag in digital technology empowerment are solved.

The study also finds that the current systematic empowerment of green finance to the cultural and tourism industry still faces institutional obstacles and technical innovation bottlenecks: At the policy level, the conflict between local governments' performance goals and long-term ecological benefits, as well as the insufficient industry coverage of green financial standards, lead to fragmented policy implementation; At the market level, the lack of a green value evaluation system for cultural and tourism projects, and the mismatch of terms and risk preferences between supply and demand sides, inhibit the enthusiasm of capital participation; At the technical level, the insufficient adaptability of low-carbon technologies in cultural and tourism scenarios and the lack of cross-field collaboration in the application of digital technologies restrict the efficiency of empowerment. Breaking through these bottlenecks depends on the in-depth integration of interdisciplinary theoretical innovation, institutional supply, and technological iteration.

(2) Future Prospects

Based on the above research, future explorations can be deepened in the following directions:

Cross-cultural comparative research on the integration of green finance and the cultural and tourism industry. Under different cultural backgrounds, there are significant differences in ecological ethics, value cognition, and financial practices of the cultural and tourism industry. Through cross-cultural comparisons, we can not only extract the universal laws of green finance empowerment but also provide experience for the international development of China's cultural and tourism industry.

Dynamic revision of the theoretical model by digital transformation. The "policy-market-technology" three-dimensional collaborative model constructed in the current research needs to be further optimized in the context of digital transformation. On the one hand, the maturity of technologies such as blockchain, artificial intelligence, and digital twins will reshape the underlying logic of green finance. On the other hand, the in-depth integration of user-generated content (UGC) in the Web3.0 era with the cultural and tourism industry (such as virtual tourism) will give birth to new financing targets like "digital cultural and tourism assets", which requires expanding the connotation and extension of green finance. Future research can reveal how digital transformation reshapes the collaborative evolution path of green finance and the cultural and tourism industry by constructing a dynamic coupling model of "technology-institution-industry".

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