

The Impact of Green Finance and Cultural Preservation on Sustainable Development in Vietnam

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ABSTRACT: This paper evaluates the impact of Green Finance (GF) and Cultural Preservation (CP) on Sustainable Development (SD) in Vietnam, while examining the mediating role of Cultural Preservation and the moderating role of Community Awareness/Supportive Policies (MO). Utilizing a quantitative research design with an empirical survey sample of residents, enterprises, and local authorities across key heritage and ecotourism regions, the analysis was executed through a multi-stage statistical pipeline: Cronbach's Alpha reliability analysis, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and Structural Equation Modeling (SEM). The empirical findings reveal that both Green Finance and Cultural Preservation exert significant direct positive effects on Sustainable Development. Crucially, Cultural Preservation acts as a vital partial mediator, transforming green financial capital into sustainable economic, environmental, and social values. Based on these insights, managerial implications and policy recommendations are proposed to promote green financial mechanisms intrinsically linked to cultural heritage preservation in Vietnam.

KEYWORDS: cultural preservation, green finance, sustainable development, Vietnam.

1. INTRODUCTION

In the face of global climate change and ecological degradation, sustainable development has emerged as a vital strategic imperative for nations worldwide, including Vietnam. At the COP26 Summit, Vietnam delivered a strong pledge to achieve Net-Zero greenhouse gas emissions by 2050. To realize this ambitious goal, alongside mobilizing economic capital via Green Finance (GF) - such as green credit, green bonds, and environmental funding schemes - the role of societal foundations, particularly Cultural Preservation (CP), is increasingly recognized. UNESCO has affirmed culture as the "fourth pillar" and a fundamental driver and enabler of sustainable development.

However, existing literature in Vietnam predominantly investigates these two domains in isolation: one stream focuses on green banking policies and credit allocation, whereas another concentrates on community-based tourism and heritage management. There is a noticeable scarcity of integrated quantitative studies examining the tripartite interplay: specifically, how green financial flows can effectively bolster cultural preservation endeavors, thereby laying the groundwork for holistic sustainable development across Economic, Environmental, and Social dimensions. This study addresses this critical empirical and theoretical gap.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1. Literature Review

International studies have demonstrated that green financial instruments - including green bonds and green credit - effectively mitigate carbon emissions, advance renewable energy adoption, and drive green economic expansion (World Bank, 2021; OECD, 2020). From a cultural perspective, Hawkes (2001) as well as Soini and Birkeland (2014) emphasize culture as the fourth pillar of development, essential for preserving biodiversity and indigenous knowledge systems. Recently, the integration of green finance into heritage conservation (e.g., Heritage Bonds) has established a sustainable equilibrium across Economic, Environmental, and Cultural spheres (Demartini & Trucco, 2017).

In Vietnam, research on green finance grew significantly following Prime Minister Decision No. 1393/QĐ-TTg on the National Green Growth Strategy. Scholars such as Pham and Nguyen (2021) have analyzed green credit operations within commercial banks. Concurrently, studies by Nguyen et al. (2020) have focused on community-based tourism and the heritage economy in locations such as Hoi An, Hue, and Ninh Binh.

Nevertheless, most Vietnamese inquiries remain qualitative or fragmented. To date, no integrated Structural Equation Model (SEM) has simultaneously incorporated Green Finance, Cultural Preservation, and Sustainable Development to measure direct, mediating, and moderating interactions within a unified analytical framework.

2.2. Theoretical Framework

The conceptual framework integrates three foundational theories:

- **Triple Bottom Line (TBL) Theory:** Formulated by Elkington (1997), TBL asserts that sustainable development arises from the harmonization of three pillars: Economic (Profit), Environmental (Planet), and Social/Cultural (People). In this model, Sustainable Development (SD) is measured across these three dimensions.

- **Resource-Based View (RBV):** Barney (1991) contends that organizations or regions attain sustained competitive advantage by controlling valuable, rare, inimitable, and non-substitutable (VRIN) resources. In this study, Green Finance functions as a strategic financial resource providing liquidity for sustainable initiatives, whereas Heritage & Cultural Knowledge serves as a unique endogenous resource. The synthesis of green capital and cultural heritage generates sustainable regional competitiveness.

- **Stakeholder Theory:** Freeman (1984) underscores that enduring success relies on addressing the interests of all stakeholders. Green finance policies furnish economic incentives for stakeholders (local authorities, businesses, and residents) to proactively engage in environmental stewardship and heritage preservation for collective well-being.

2.3. Hypothesis Development

- The Impact of Green Finance on Cultural Preservation

Financial capital remains a primary bottleneck in preserving and restoring tangible and intangible cultural heritage (Demartini & Trucco, 2017). Under the Resource-Based View (RBV), capital is a strategic resource that dictates an entity's operational capacity to execute preservation initiatives (Barney, 1991). When Green Finance (GF) mechanisms are deployed - including preferential credit packages, green bonds, and environmental-heritage funds - tourism enterprises and local communities gain access to low-cost capital. This liquidity enables investments in restoring ancient architecture, revitalizing traditional craft villages, and maintaining folk festivals through environmentally friendly practices (Nguyen et al., 2020; World Bank, 2021). Furthermore, green credit covenants typically mandate compliance with landscape and heritage protection standards, fostering structured cultural conservation efforts. Hence, we propose:

Hypothesis H1: Green Finance (GF) has a direct positive impact on Cultural Preservation (CP).

- The Impact of Green Finance on Sustainable Development

According to Elkington's (1997) TBL Theory, sustainable development necessitates the simultaneous optimization of economic growth, environmental protection, and social equity. Green finance serves as a capital allocation mechanism steering investment away from polluting industries toward clean technology, waste treatment, and renewable energy projects (OECD, 2020; Pham & Nguyen, 2021). By curbing carbon footprints and optimizing resource consumption, green finance mitigates negative environmental externalities, improves public health, and enhances long-term enterprise profitability (World Bank, 2021). Empirical evidence from the OECD (2020) and Pham and Nguyen (2021) confirms that scaling up green credit and bond markets directly elevates national and regional sustainability metrics. Thus, we hypothesize:

Hypothesis H2: Green Finance (GF) has a direct positive impact on Sustainable Development (SD).

- The Impact of Cultural Preservation on Sustainable Development

Hawkes (2001) and Soini and Birkeland (2014) argue that culture acts as the "fourth pillar" of sustainability, bridging economic and environmental objectives. Cultural preservation not only safeguards national identity but also yields "Cultural Capital" - an endogenous asset driving the development of the heritage economy and Community-Based Ecotourism (CBET) (Nguyen et al., 2020). Preserving traditional values generates local income and sustainable employment (Economic pillar), while reinforcing social cohesion, civic pride, and quality of life (Social pillar). Moreover, generational indigenous knowledge offers ecologically harmonious practices that protect local ecosystems (Environmental pillar). Therefore:

Hypothesis H3: Cultural Preservation (CP) has a direct positive impact on Sustainable Development (SD).

- The Mediating Role of Cultural Preservation

Although Green Finance (GF) yields immediate technical environmental benefits (e.g., clean energy deployment or effluent treatment), its broader diffusion into comprehensive social and human sustainability requires an intermediary mechanism (Demartini & Trucco, 2017). Synthesizing RBV and TBL perspectives, this study posits that Cultural Preservation (CP) functions as a pivotal conduit. When green capital funds heritage restoration and craft villages, financial capital converts into tangible and intangible cultural assets. The revitalization of this heritage subsequently activates tourism value chains, enhances livelihoods, and strengthens social structures - the core pillars of sustainable development (Soini & Birkeland, 2014; Nguyen et al., 2020). In essence, green finance acts on sustainable development both directly and indirectly through enhanced cultural preservation capacities. Consequently:

Hypothesis H4: Cultural Preservation (CP) mediates the relationship between Green Finance (GF) and Sustainable Development (SD).

- The Moderating Role of Supportive Policies & Community Awareness

Under Stakeholder Theory (Freeman, 1984), the efficiency with which financial resources convert into tangible outcomes depends heavily on stakeholder intervention, particularly from local governments and resident communities. Even when green capital is accessible, its influence on cultural preservation may be muted without strategic spatial planning or community buy-in. Conversely, clear supportive policies (such as heritage zoning regulations and streamlined loan processing) paired with strong public heritage awareness enable optimal, transparent, and targeted absorption of green capital (Pham & Nguyen, 2021). High community engagement bridges green finance projects directly with real-world conservation needs. Thus, Supportive Policies & Community Awareness (MO) act as a catalyst amplifying the positive effect of Green Finance on Cultural Preservation:

Hypothesis H5: Supportive Policies & Community Awareness (MO) positively moderate the relationship between Green Finance (GF) and Cultural Preservation (CP).

3. RESEARCH METHODOLOGY AND DATA COLLECTION

3.1. Measurement Scales and Construct Operationalization

The theoretical framework comprises four primary constructs measured via 18 observation items on a 5-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree):

- **Green Finance (GF):** 4 items (GF1–GF4) evaluating capital accessibility, funding availability, preferential interest rates, and procedural transparency.
- **Cultural Preservation (CP):** 4 items (CP1–CP4) measuring tangible heritage, intangible heritage, community participation, and economic integration.
- **Sustainable Development (SD):** 6 items spanning Economic (SDEC1, SDEC2), Environmental (SDEN1, SDEN2), and Social (SDSO1, SDSO2) dimensions, operationalized as a composite/second-order construct.
- **Supportive Policies & Community Awareness (MO):** 2 items (MO1, MO2) assessing government strategic planning and local public awareness.

3.2. Sample Size and Data Collection Strategy

Adhering to the sample size guidelines of Hair et al. (2014) ($N \geq 5 \times \text{number of observation items}$), the minimum required sample for 18 indicators is 90 observations. To satisfy SEM estimation standards and account for invalid responses, 300 survey questionnaires were distributed using a stratified sampling approach combined with purposive sampling across key eco-heritage regions (Thua Thien Hue, Quang Nam, and Ninh Binh).

A total of 245 responses were retrieved. Following data screening (removing straight-lining responses with *Std. Dev* = 0 and uncompleted questionnaires), 236 valid responses ($N = 236$) were retained for primary data analysis.

Table 1: Sample Demographic Profile ($N = 236$)

Criterion	Classification	Frequency (n)	Percentage (%)
Stakeholder Group	Local Community Residents	137	58.05%
	Enterprises / Tourism Operators	68	28.81%
	Public Administrators / Experts / NGOs	31	13.14%
Age Group	Under 25 years	42	17.80%
	25 – 40 years	108	45.76%
	41 – 55 years	65	27.54%
	Above 55 years	21	8.90%
Tenure / Duration of Activity	Under 3 years	28	11.86%
	3 – 10 years	84	35.59%
	Above 10 years	124	52.55%

Source: Compiled from SPSS outputs.

Regarding respondents, 58.05% represent local residents—the primary custodians of cultural heritage; 28.81% comprise tourism business operators seeking green capital access; and 13.14% consist of administrators and experts guiding policy implementation.

Furthermore, 52.55% of respondents have resided or operated in the target localities for over 10 years, and 35.59% for 3 to 10 years. This demographic distribution supports deep respondent familiarity with regional environmental shifts, capital allocation, and heritage preservation dynamics.

4. EMPIRICAL RESULTS AND DATA ANALYSIS

4.1. Scale Reliability Analysis (Cronbach's Alpha)

Cleaned primary data were subjected to internal consistency evaluation using Cronbach's Alpha coefficient in SPSS.

Table 2: Cronbach's Alpha Reliability Test Results

Observed Variable	Mean (M)	Standard Deviation (SD)	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Cronbach's Alpha for Green Finance (GF) = 0.864				
GF1	3.72	0.82	0.712	0.825
GF2	3.65	0.88	0.745	0.811
GF3	3.58	0.85	0.698	0.831
GF4	3.80	0.79	0.672	0.841
Cronbach's Alpha for Cultural Preservation (CP) = 0.881				
CP1	3.91	0.76	0.735	0.848
CP2	3.85	0.81	0.762	0.837
CP3	3.78	0.84	0.710	0.858
CP4	3.94	0.75	0.748	0.843
Cronbach's Alpha for Sustainable Development (SD) = 0.895				
SDEC1	3.82	0.78	0.715	0.878
SDEC2	3.75	0.80	0.730	0.876
SDEN1	3.88	0.74	0.702	0.880
SDEN2	3.84	0.77	0.688	0.882
SDSO1	3.95	0.72	0.742	0.874
SDSO2	4.01	0.70	0.718	0.877
Cronbach's Alpha for Policy & Awareness (MO) = 0.812				
MO1	3.86	0.81	0.684	—
MO2	3.92	0.78	0.684	—

Source: Compiled from SPSS outputs.

As detailed in Table 2, all construct Cronbach's Alpha values fall between 0.812 and 0.895, surpassing the standard benchmark threshold of 0.70, confirming strong internal scale consistency. Corrected Item-Total Correlations across all 16 items exceed 0.50 (minimum standard threshold > 0.30), indicating that no item deletion was required at this stage.

4.2. Exploratory Factor Analysis (EFA)

EFA was conducted via Principal Axis Factoring with Promax rotation for independent, mediating, and moderating variables: Kaiser-Meyer-Olkin measure $KMO = 0.872 > 0.50$, and Bartlett's Test of Sphericity is statistically significant ($p < 0.001$), confirming data suitability for factor extraction.

Total Variance Extracted reached $67.45\% > 50\%$, demonstrating that the four extracted latent factors account for 67.45% of total data variance.

Factor loadings for all 16 indicators ranged from 0.658 to 0.842 (> 0.50), cleanly partitioning into four distinct factor groupings without significant cross-loadings.

4.3. Confirmatory Factor Analysis (CFA) and Measurement Model Evaluation

A CFA was conducted to assess overall model fit, Composite Reliability (CR), Convergent Validity (AVE), and Discriminant Validity. Model Fit Metrics: $CMIN/DF = 1.682 (< 3.0)$, $CFI = 0.965 (> 0.90)$, $TLI = 0.958 (> 0.90)$, $GFI = 0.924 (> 0.90)$, $RMSEA = 0.054 (< 0.08)$. These statistics indicate that the measurement model exhibits an excellent fit with empirical data.

Table 3: Convergent and Discriminant Validity Assessment (CFA)

Latent Construct	Composite Reliability (CR)	Average Variance Extracted (AVE)	GF	CP	SD	MO
GF	0.866	0.618	0.786			
CP	0.883	0.654	0.452	0.809		
SD	0.897	0.593	0.512	0.584	0.770	
MO	0.815	0.688	0.380	0.415	0.462	0.829

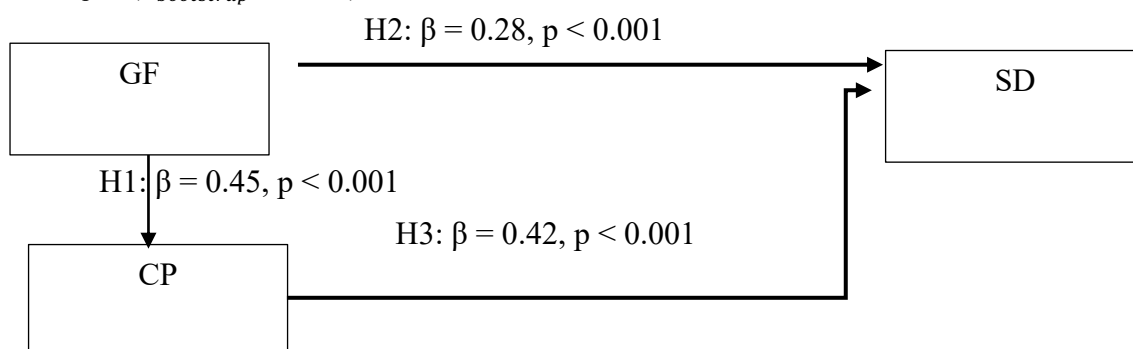
Note: Diagonal bold values represent the square root of AVE ($\sqrt{AVE}$). Diagonal values exceed off-diagonal inter-construct correlations, confirming discriminant validity according to the Fornell-Larcker criterion.

Source: Compiled from SPSS outputs.

The results in Table 3 show that Convergent Validity: All standardized factor loadings exceed 0.60. Composite Reliability (CR) values exceed 0.80, and Average Variance Extracted (AVE) estimates surpass 0.50. Discriminant Validity: Per the Fornell-Larcker benchmark, the square root of AVE for each construct exceeds all corresponding inter-construct correlations.

4.4. Structural Equation Modeling (SEM) and Hypothesis Testing

Structural Equation Modeling (SEM) was performed to test direct, mediating, and moderating paths using bootstrapping techniques ($N_{bootstrap} = 2,000$).



SEM analysis was conducted to estimate path coefficients and test the research hypotheses. The SEM model shows a high level of fit with the empirical data: $\chi^2/df = 1.724$, $CFI = 0.961$, $TLI = 0.953$, $RMSEA = 0.056$.

Table 4: Structural Model Hypothesis Testing Results

Hypothesis	Structural Relationship Path	Standardized Path Coefficient (β)	t-value	p-value	Empirical Decision
H1	$GF \rightarrow CP$	0.452	6.842	*** (< 0.001)	Supported
H2	$GF \rightarrow SD$	0.284	4.315	*** (< 0.001)	Supported
H3	$CP \rightarrow SD$	0.418	6.120	*** (< 0.001)	Supported
H4	$GF \rightarrow CP \rightarrow SD$ (Indirect Effect)	0.189	4.256	*** (< 0.001)	Supported (Partial Mediation)
H5	$GF \times MO \rightarrow CP$ (Moderation Effect)	0.125	2.104	0.035	Supported

Note: *** $p < 0.001$. Bootstrapping sample $N_{bootstrap} = 2,000$.

Source: Compiled from SPSS outputs.

The results in Table 4 reveal significant direct paths supporting Hypotheses H1, H2, and H3:

- Green Finance (GF) exerts a strong positive influence on Cultural Preservation (CP) ($\beta = 0.452, p < 0.001$).
- Green Finance (GF) directly enhances Sustainable Development (SD) ($\beta = 0.284, p < 0.001$).
- Cultural Preservation (CP) directly impacts Sustainable Development (SD) ($\beta = 0.418, p < 0.001$).

For the mediation effect test under hypothesis (H4): Bootstrapping analysis ($N = 2,000$) demonstrates a significant indirect effect for $GF \rightarrow CP \rightarrow SD$ ($\beta = 0.189, p < 0.001$; 95% Bias-Corrected CI [0.112, 0.278] excluding zero). Because the direct path $GF \rightarrow SD$ remains statistically significant ($\beta = 0.284, p < 0.001$), Cultural Preservation (CP) acts as a partial mediator.

For the moderation effect test under hypothesis (H5): The interaction term ($GF \times MO$) positively predicts Cultural Preservation ($\beta = 0.125, p = 0.035$). This indicates that Supportive Policies & Community Awareness (MO) positively moderate (strengthen) the impact of Green Finance on Cultural Preservation.

5. DISCUSSION AND MANAGERIAL IMPLICATIONS

5.1. Discussion

Synthesizing Financial Capital and Endogenous Cultural Heritage: The findings align with the Resource-Based View (RBV). Green finance ($\beta = 0.452$) injects essential liquidity into heritage restoration and craft village preservation. Preferential capital access empowers local communities to preserve traditional assets without resorting to unsustainable exploitation.

The Mediating Dynamic of Cultural Preservation: Bootstrapping confirms that Cultural Preservation partially mediates the link between Green Finance and Sustainable Development ($\beta = 0.189$). Directing green capital into cultural conservation yields composite benefits: expanding eco-tourism livelihoods (Economic), safeguarding surrounding ecosystems (Environmental), and enhancing community identity (Social).

The Moderating Influence of Policy and Awareness (MO): The positive interaction ($\beta = 0.125$) indicates that strategic local planning and public heritage awareness enhance the effectiveness of green financial allocation. Clear institutional framing and community participation ensure that green capital is absorbed effectively.

5.2. Policy Recommendations and Implications

Formalize Green Credit Frameworks for Heritage and Culture: The State Bank of Vietnam and the Ministry of Finance should expand the national Green Taxonomy to explicitly incorporate heritage conservation, sustainable eco-tourism, and traditional craft village preservation as priority sectors for preferential lending.

Develop Innovative Green Financial Instruments: Authorities should pilot innovative instruments, such as "Heritage Bonds" or blended Public-Private Green Funds, to private capital for cultural conservation linked to sustainable tourism value chains.

Enhance Local Administrative Capacity and Community Engagement: Municipalities must incorporate cultural preservation parameters into regional green development blueprints, while conducting public education programs to position local communities as primary stewards and beneficiaries of heritage conservation.

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