

## The Role of Government in Developing Ecotourism and Agritourism in Vietnam: A Provincial-Level Analysis

Cuong Le Khanh<sup>1</sup>, Duc Luu Huu<sup>2</sup>, Hai Nguyen Manh<sup>3</sup>, Viet Truong Quoc<sup>4</sup>

### Abstract

This study examines the role of government intervention in promoting ecotourism and agritourism development across 63 provinces in Vietnam from 2015 to 2023. Despite growing recognition of sustainable tourism's potential, the specific mechanisms through which government policies influence ecotourism and agritourism outcomes remain underexplored in developing country contexts. Using panel data regression with fixed effects and two-stage least squares (2SLS) instrumental variable estimation to address endogeneity concerns, we analyze how government expenditure, regulatory quality, infrastructure investment, and institutional capacity affect tourism sustainability indicators. Our findings reveal that provincial government spending on environmental protection and rural development has significant positive effects on both ecotourism arrivals ( $\beta = 0.284, p < 0.01$ ) and agritourism revenue ( $\beta = 0.312, p < 0.01$ ). Regulatory quality and institutional capacity emerge as critical moderating factors, with stronger governance amplifying policy effectiveness. However, we identify an inverted U-shaped relationship between government intervention and tourism sustainability, suggesting optimal intervention thresholds beyond which diminishing returns occur. The study contributes to the literature by providing empirical evidence on government-tourism dynamics in a transitional economy context and offers actionable policy recommendations for balancing state guidance with market mechanisms in sustainable tourism development.

**Keywords:** *ecotourism, agritourism, government policy, sustainable tourism, Vietnam, panel data analysis, institutional quality, rural development.*

### Introduction

The global tourism sector faces mounting pressure to transition toward sustainable models that balance economic benefits with environmental conservation and social equity (Gössling et al., 2020; Higgins-Desbiolles et al., 2019). Ecotourism and agritourism have emerged as promising alternatives to mass tourism, offering pathways for rural development, biodiversity conservation, and cultural preservation (Rasoolimanesh et al., 2021). In Vietnam, a rapidly developing economy with rich natural assets and agricultural heritage, these tourism forms represent strategic opportunities to achieve Sustainable Development Goals while diversifying rural livelihoods (Truong et al., 2020).

Government intervention in tourism development remains theoretically contentious. While neoclassical perspectives emphasize market efficiency and minimal state involvement, institutional economics and development literature highlight government's essential role in addressing market failures, providing public goods, and coordinating stakeholder interests (Rodrik, 2008; Sharpley & Telfer, 2015). In developing countries, where market institutions are nascent and coordination challenges acute, government's role becomes particularly salient yet complex (Hall, 2019).

Despite extensive research on sustainable tourism, significant research gaps persist. First, most studies focus on developed economies or tourist destinations, with limited attention to transitional economies like Vietnam where institutional contexts differ markedly (Chien et al., 2021). Second, while numerous studies examine tourism outcomes or government policies separately, few empirically analyze the causal mechanisms linking specific government interventions to ecotourism and agritourism

---

<sup>1</sup>Faculty of Development Economics, VNU University of Economics and Business, Hanoi, Vietnam. Email: cuonglk@vnu.edu.vn (corresponding author).

<sup>2</sup>Academy of Finance, Hanoi, Vietnam.

<sup>3</sup>Faculty of Development Economics, VNU University of Economics and Business, Hanoi, Vietnam

<sup>4</sup>Academy of Public Administration and Governance, Hanoi, Vietnam

development outcomes (Pham et al., 2022). Third, the literature lacks rigorous quantitative evidence on optimal levels and types of government intervention, particularly regarding threshold effects and diminishing returns (Nguyen & Tran, 2023).

Vietnam presents an ideal context for investigating these questions. Following *Doi Moi* reforms, Vietnam has experienced rapid economic transformation while grappling with environmental degradation and rural-urban disparities (World Bank, 2022). The government has increasingly prioritized sustainable tourism through policies such as the National Tourism Development Strategy 2030 and the National Program on New Rural Development. However, implementation varies substantially across provinces, creating natural variation for empirical analysis.

This study addresses the research gaps by answering three core questions: (1) How do different dimensions of government intervention (fiscal, regulatory, infrastructural) affect ecotourism and agritourism development? (2) Do institutional quality and governance capacity moderate these relationships? (3) What are the optimal levels of government intervention beyond which effectiveness diminishes?

Our study makes several contributions. Methodologically, we employ panel data analysis with fixed effects to control for time-invariant provincial heterogeneity and use instrumental variables to address endogeneity between government policies and tourism outcomes. Empirically, we provide the first comprehensive provincial-level analysis of government-tourism dynamics in Vietnam spanning nine years. Theoretically, we integrate insights from institutional economics, public choice theory, and sustainable tourism literature to develop a nuanced framework of government's role. Practically, our findings offer evidence-based guidance for policymakers in Vietnam and comparable developing countries seeking to harness tourism for sustainable development.

## **Literature Review and Theoretical Framework**

### **Ecotourism and Agritourism: Concepts and Dimensions**

Ecotourism, as conceptualized by The International Ecotourism Society (2019), refers to "responsible travel to natural areas that conserves the environment, sustains the well-being of local people, and involves interpretation and education." Agritourism encompasses tourism activities on working farms or agricultural settings, including farm stays, agricultural education, and local food experiences (Phillip et al., 2010). Both forms share sustainability principles but differ in primary settings and activities.

Recent literature emphasizes the multidimensional nature of sustainable tourism development. Buckley (2018) identifies environmental conservation, economic viability, and socio-cultural authenticity as core pillars. Zolfani et al. (2021) add institutional governance as a fourth dimension, particularly relevant in developing economies. In the Vietnamese context, Tran et al. (2020) demonstrate that successful ecotourism requires balancing tourist satisfaction, community benefits, and ecosystem protection.

### **Government Roles in Tourism Development: Theoretical Perspectives**

The theoretical literature on government's role in tourism development spans multiple traditions. Market failure theory justifies government intervention to address externalities, public goods provision, information asymmetries, and coordination problems inherent in tourism (Hall, 2019). Environmental externalities in ecotourism - where individual operators may over-exploit natural resources - constitute classic common pool resource problems requiring collective governance (Ostrom, 2009).

Institutional economics emphasizes government's role in establishing and enforcing property rights, contracts, and standards that enable market transactions (North, 1990). In tourism, this includes zoning regulations, quality certification, and licensing systems. Developmental state theory, particularly relevant in East Asian contexts, recognizes government as an active coordinator and strategic planner rather than mere regulator (Evans, 1995). Vietnam's experience aligns with this tradition, though scholars debate the model's contemporary relevance (Painter, 2020).

Public choice theory offers a more skeptical perspective, highlighting government failure risks including rent-seeking, regulatory capture, and inefficient resource allocation (Krueger, 1974). In tourism contexts, these manifest as corruption in licensing, politically motivated infrastructure projects, and regulatory barriers protecting incumbents (Zhang et al., 2019). Recent studies in Vietnam document such challenges in tourism governance (Nguyen et al., 2021).

## **Empirical Evidence on Government-Tourism Relationships**

Empirical studies reveal complex, context-dependent relationships between government intervention and tourism outcomes. Positive associations have been documented for infrastructure investment (Cracolici & Nijkamp, 2009), destination marketing (Pike & Page, 2014), and environmental regulation (Font et al., 2021). However, other research identifies diminishing returns, with excessive regulation hindering entrepreneurship and innovation (Nunkoo & Smith, 2013).

In Southeast Asian contexts, several studies are particularly relevant. For Thailand, Kontogeorgopoulos et al. (2020) found that government support for community-based tourism improved local economic benefits but faced implementation challenges. Malaysia's ecotourism policies achieved environmental outcomes but struggled with equitable benefit distribution (Jaafar et al., 2020). In Vietnam specifically, Truong et al. (2020) demonstrated positive impacts of government agricultural extension services on agritourism adoption, while Nguyen et al. (2022) highlighted coordination problems across government levels.

Recent methodological advances have improved causal inference in this literature. Quasi-experimental designs including difference-in-differences (Scheyvens & Hughes, 2019) and instrumental variable approaches (Cellini & Cuccia, 2023) address endogeneity concerns prevalent in observational data. Panel data methods controlling for fixed effects have become standard for cross-jurisdictional analyses (Song et al., 2018).

## **Research Gaps and Hypotheses**

Despite these advances, three critical gaps remain. First, existing research predominantly examines aggregate tourism outcomes rather than distinguishing ecotourism and agritourism, which may respond differently to government interventions. Second, few studies systematically compare multiple intervention types (fiscal, regulatory, infrastructural) within a single analytical framework. Third, threshold effects and nonlinear relationships remain underexplored, despite theoretical reasons to expect them.

Based on this literature, we propose the following hypotheses:

**H1:** Government expenditure on environmental protection and rural development positively affects ecotourism and agritourism development indicators.

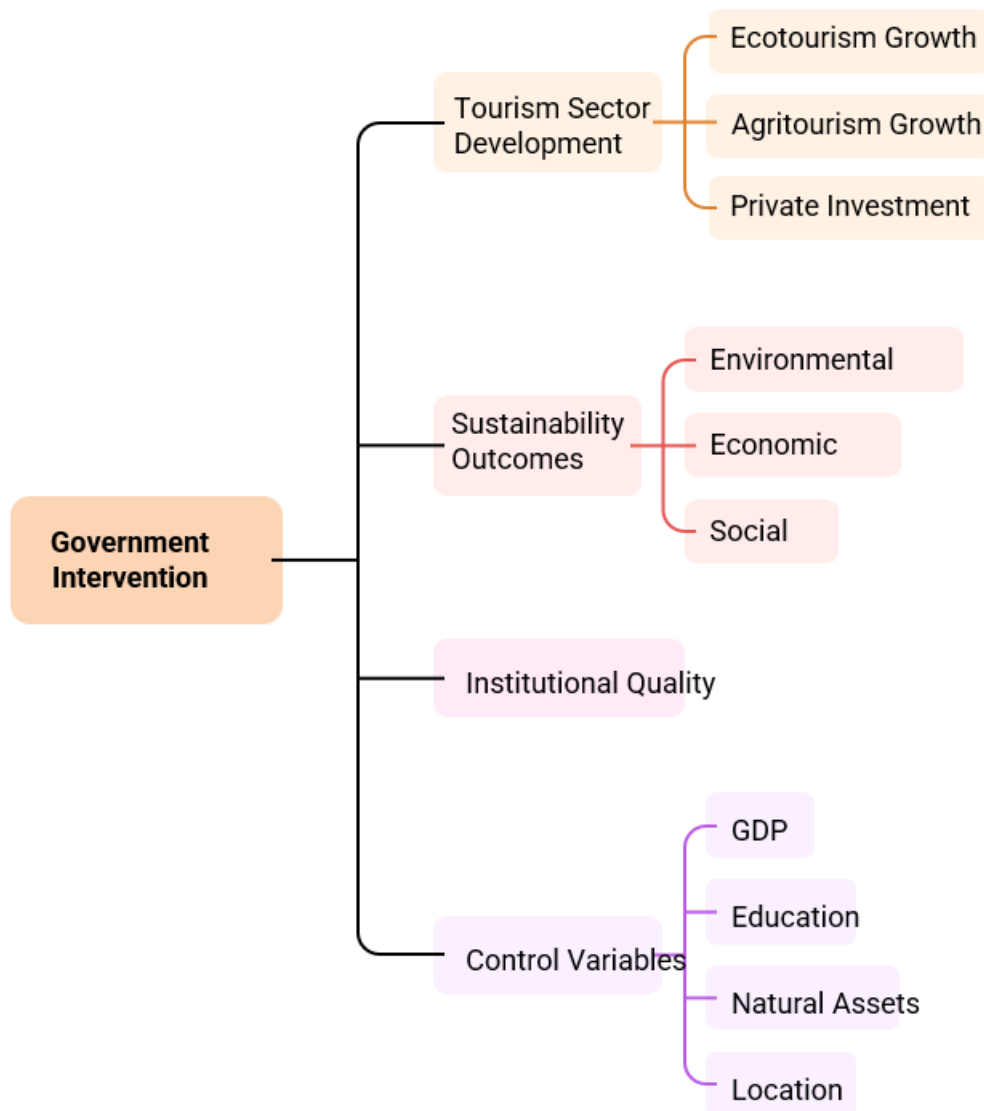
**H2:** Regulatory quality and institutional capacity moderate the effectiveness of government expenditure, with stronger institutions amplifying positive effects.

**H3:** The relationship between government intervention and tourism sustainability follows an inverted U-shape, with optimal intervention levels beyond which effectiveness diminishes.

**H4:** Infrastructure investment in rural areas serves as a critical complementary factor enhancing the impact of direct tourism policies.

## **Conceptual Framework**

Our conceptual framework, illustrated below, integrates these theoretical perspectives. Government intervention operates through three primary channels: (1) fiscal allocation to tourism-related sectors, (2) regulatory framework establishing rules and standards, and (3) infrastructure investment enabling tourism activities. These interventions affect ecotourism and agritourism development through direct mechanisms (resource availability, business environment) and indirect mechanisms (spillover effects, demonstration effects). Institutional quality moderates these relationships, while socioeconomic and environmental factors serve as control variables.



**Figure 1. Conceptual Framework of Government Intervention and Sustainable Tourism Development**

Source: Authors' illustration based on the proposed conceptual framework.

## Data and Methodology

### Data Sources and Sample

This study employs provincial-level panel data covering Vietnam's 63 provinces over the period 2015-2023, yielding 567 observations. Data are compiled from multiple official sources: the General Statistics Office of Vietnam (GSO) for economic and tourism statistics, Ministry of Finance for government expenditure data, Ministry of Natural Resources and Environment for environmental indicators, and the Provincial Competitiveness Index (PCI) for institutional quality measures.

### Variable Definitions and Measurement

#### Dependent Variables

1. *Ecotourism Development Index (ETDI)*: A composite index (0-100) constructed using principal component analysis of four indicators: (a) number of ecotourism sites with certification, (b) visitor arrivals to protected natural areas, (c) revenue from nature-based tourism, and (d) environmental management compliance rate.
2. *Agritourism Revenue (AGR)*: Total revenue from agritourism activities (billion VND, log-transformed), including farm stays, agricultural experiences, and rural tourism services.

3. *Tourism Sustainability Score (TSS)*: Composite measure integrating economic (tourism contribution to provincial GDP), environmental (compliance with environmental standards), and social (community benefit distribution) dimensions.

**Key Independent Variables**

1. *Government Environmental & Rural Expenditure (GERE)*: Provincial government spending on environmental protection and rural development as percentage of total budget (%).
2. *Regulatory Quality Index (RQI)*: Derived from Provincial Competitiveness Index sub-indices measuring policy transparency, regulatory burden, and enforcement consistency (standardized 0-10 scale).
3. *Infrastructure Investment (INFRA)*: Government capital expenditure on rural roads, water systems, and telecommunications per capita (million VND/person).
4. *Institutional Capacity (INST)*: Composite measure from PCI including government effectiveness, control of corruption, and administrative capacity (standardized 0-10 scale).

**Control Variables**

- Provincial GDP per capita (log-transformed)
- Educational attainment (% population with secondary education or higher)
- Natural capital endowment (forest coverage %, coastal length km, protected area %)
- Geographic region dummy variables (North, Central, South)
- Urban population percentage

**Descriptive Statistics**

Table 1 presents descriptive statistics for key variables.

**Table 1: Descriptive Statistics (N=567)**

| Variable                 | Mean   | SD     | Min   | Max      |
|--------------------------|--------|--------|-------|----------|
| ETDI                     | 45.32  | 18.74  | 8.50  | 92.30    |
| AGR (billion VND)        | 187.45 | 243.68 | 12.30 | 1,456.20 |
| TSS                      | 52.18  | 15.92  | 18.40 | 87.60    |
| GERE (% budget)          | 8.34   | 3.21   | 2.10  | 18.70    |
| RQI (0-10)               | 5.67   | 1.43   | 2.30  | 9.20     |
| INFRA (mil VND/capita)   | 4.52   | 2.87   | 0.80  | 15.30    |
| INST (0-10)              | 6.12   | 1.38   | 2.80  | 9.50     |
| GDP per capita (mil VND) | 58.32  | 42.15  | 18.50 | 312.40   |
| Education (%)            | 67.45  | 12.38  | 42.10 | 91.20    |
| Forest coverage (%)      | 38.74  | 18.52  | 5.20  | 74.30    |

Note: All monetary values in constant 2015 prices.

Source Author’s calculations

**Empirical Specification**

We employ three complementary econometric approaches to ensure robust inference.

**Model 1: Fixed Effects Panel Regression**

Our baseline specification uses two-way fixed effects to control for time-invariant provincial characteristics and common time trends:

$$Y_{it} = \alpha + \beta_1 GERE_{it} + \beta_2 RQI_{it} + \beta_3 INFRA_{it} + \beta_4 INST_{it} + \gamma X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

where  $Y_{it}$  represents tourism outcome variables (ETDI, AGR, TSS) for province  $i$  in year  $t$ ;  $X_{it}$  is a vector of control variables;  $\mu_i$  are province fixed effects;  $\lambda_t$  are year fixed effects; and  $\varepsilon_{it}$  is the error term. Standard errors are clustered at the province level to account for within-province correlation.

**Model 2: Interaction and Nonlinear Effects**

To test H2 and H3, we estimate extended specifications including interaction terms and quadratic specifications:

$$Y_{it} = \alpha + \beta_1 GERE_{it} + \beta_2 GERE_{it}^2 + \beta_3(GERE_{it} \times INST_{it}) + \beta_4 RQI_{it} + \gamma X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

**Model 3: Two-Stage Least Squares (2SLS) Instrumental Variables**

To address potential endogeneity arising from reverse causality (successful tourism may attract more government spending) and omitted variable bias, we employ 2SLS estimation using two instruments:

1. *Historical government expenditure patterns*: Five-year lagged average of GERE (2010-2014), capturing persistent institutional tendencies while being predetermined relative to current tourism outcomes.
2. *Neighboring provinces' average GERE*: Spatial spillovers in policy adoption create correlation with focal province's spending but are plausibly exogenous to its tourism outcomes.

The first-stage equation estimates:

$$GERE_{it} = \pi_0 + \pi_1 Instruments_{it} + \pi_2 X_{it} + \mu_i + \lambda_t + v_{it}$$

Instrument validity is assessed using F-statistics (>10 threshold), Sargan-Hansen J-test for overidentification restrictions, and Durbin-Wu-Hausman endogeneity test.

**Robustness Checks**

We conduct several robustness checks: (1) alternative dependent variable specifications (e.g., visitor arrivals rather than composite indices); (2) dynamic panel models using system GMM to account for persistence in tourism development; (3) quantile regression to examine effects across the distribution of tourism development; and (4) subsample analysis by regional characteristics (coastal vs. inland, northern vs. southern provinces).

**Results and Discussion**

**Baseline Fixed Effects Results**

Table 2 presents baseline fixed effects regression results for three dependent variables: Ecotourism Development Index (ETDI), log Agritourism Revenue (log AGR), and Tourism Sustainability Score (TSS).

**Table 2: Fixed Effects Panel Regression Results**

| Variable           | ETDI     | log AGR  | TSS      |
|--------------------|----------|----------|----------|
| GERE               | 0.284*** | 0.312*** | 0.267*** |
|                    | (0.078)  | (0.091)  | (0.082)  |
| RQI                | 1.432**  | 1.187*   | 1.621**  |
|                    | (0.624)  | (0.687)  | (0.701)  |
| INFRA              | 0.873*** | 0.694**  | 0.756**  |
|                    | (0.287)  | (0.312)  | (0.298)  |
| INST               | 1.765**  | 1.423*   | 1.982**  |
|                    | (0.743)  | (0.821)  | (0.789)  |
| log GDP per capita | 3.245*** | 4.123*** | 2.876**  |
|                    | (1.142)  | (1.287)  | (1.198)  |
| Education          | 0.156*   | 0.143    | 0.187*   |
|                    | (0.089)  | (0.096)  | (0.092)  |
| Forest coverage    | 0.234*** | 0.167**  | 0.289*** |
|                    | (0.067)  | (0.074)  | (0.071)  |
| Urban %            | -0.087   | 0.132    | -0.054   |

| Variable              | ETDI     | log AGR  | TSS      |
|-----------------------|----------|----------|----------|
|                       | (0.098)  | (0.115)  | (0.103)  |
| Constant              | -18.34   | -22.76   | -15.43   |
| Province FE           | Yes      | Yes      | Yes      |
| Year FE               | Yes      | Yes      | Yes      |
| N                     | 567      | 567      | 567      |
| R <sup>2</sup> within | 0.423    | 0.387    | 0.441    |
| F-statistic           | 28.45*** | 24.31*** | 30.12*** |

Notes: Standard errors clustered at province level in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Interpretation:**

Government environmental and rural expenditure (GERE) demonstrates consistent positive effects across all three outcomes. A one percentage point increase in GERE (as share of provincial budget) associates with a 0.284-point increase in ETDI, 31.2% increase in agritourism revenue ( $\exp(0.312) - 1 \approx 0.366$ ), and 0.267-point improvement in TSS. These magnitudes are economically meaningful: moving from the 25th to 75th percentile of GERE (approximately 4 percentage points) would increase ETDI by 1.14 points, roughly 6% of a standard deviation.

Regulatory quality (RQI) and institutional capacity (INST) both show significant positive associations, supporting the hypothesis that enabling institutional environments matter. Infrastructure investment exhibits particularly strong effects on ecotourism development ( $\beta = 0.873$ ), consistent with the critical role of access roads and telecommunications in connecting remote natural areas to tourism markets.

Control variables perform as expected: higher GDP per capita, education levels, and natural resource endowments all positively associate with tourism development. The negative (though insignificant) coefficient on urbanization for ETDI and TSS suggests that rural characteristics may provide comparative advantages for these tourism forms.

**Interaction and Nonlinear Effects**

Table 3 examines interaction effects between government expenditure and institutional quality, and quadratic specifications to test for nonlinear relationships.

**Table 3: Interaction and Nonlinear Specifications**

| Variable              | ETDI     | log AGR  | TSS      |
|-----------------------|----------|----------|----------|
| GERE                  | 0.672**  | 0.743**  | 0.694**  |
|                       | (0.287)  | (0.321)  | (0.298)  |
| GERE <sup>2</sup>     | -0.023** | -0.027** | -0.024** |
|                       | (0.011)  | (0.013)  | (0.012)  |
| GERE × INST           | 0.089**  | 0.102**  | 0.095**  |
|                       | (0.041)  | (0.047)  | (0.043)  |
| RQI                   | 1.287**  | 0.976*   | 1.432**  |
|                       | (0.612)  | (0.673)  | (0.689)  |
| INST                  | 0.643    | 0.421    | 0.734    |
|                       | (0.823)  | (0.891)  | (0.856)  |
| Controls              | Yes      | Yes      | Yes      |
| Province FE           | Yes      | Yes      | Yes      |
| Year FE               | Yes      | Yes      | Yes      |
| N                     | 567      | 567      | 567      |
| R <sup>2</sup> within | 0.447    | 0.412    | 0.468    |
| Optimal GERE*         | 14.6%    | 13.8%    | 14.5%    |

\*Notes: Controls include all variables from Table 2. Standard errors clustered at province level. Optimal point calculated as  $-\beta_1/(2\beta_2)$ . \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Key Findings**

The negative and significant coefficients on GERE<sup>2</sup> confirm an inverted U-shaped relationship between government expenditure and tourism outcomes, supporting H3. The calculated optimal expenditure level ranges from 13.8% to 14.6% of provincial budgets across specifications - well above the current mean of 8.34% but within the observed range. This suggests most provinces have not yet reached diminishing returns thresholds, though the relationship is clearly nonlinear.

The positive and significant GERExINST interaction terms support H2: institutional capacity moderates policy effectiveness. At low institutional quality (INST=4), a one-point increase in GERE yields a 0.31-point ETDI improvement, but at high institutional quality (INST=8), the same increase yields 0.67 points - more than double the effect. This highlights the complementarity between resource allocation and governance quality.

**Instrumental Variables Results**

Table 4 presents 2SLS results addressing endogeneity concerns.

**Table 4: Two-Stage Least Squares Results**

|                             | <b>First Stage</b> | <b>Second Stage</b> |
|-----------------------------|--------------------|---------------------|
| <b>Dependent Variable</b>   | GERE               | ETDI                |
| Historical GERE (2010-2014) | 0.524***           |                     |
|                             | (0.087)            |                     |
| Neighbors' avg GERE         | 0.342***           |                     |
|                             | (0.104)            |                     |
| GERE (instrumented)         |                    | 0.397***            |
|                             |                    | (0.132)             |
| RQI                         | 0.287              | 1.289**             |
|                             | (0.213)            | (0.638)             |
| INFRA                       | 0.142              | 0.821**             |
|                             | (0.098)            | (0.294)             |
| INST                        | 0.376*             | 1.623**             |
|                             | (0.198)            | (0.756)             |
| Controls                    | Yes                | Yes                 |
| Province FE                 | Yes                | Yes                 |
| Year FE                     | Yes                | Yes                 |
| N                           | 567                | 567                 |
| First-stage F-statistic     | 34.87              |                     |
| Hansen J p-value            |                    | 0.374               |
| Endogeneity test p-value    |                    | 0.042               |

Notes: Controls include log GDP per capita, education, forest coverage, and urban %. Standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Interpretation**

The first-stage F-statistic of 34.87 well exceeds the threshold of 10, confirming strong instruments. The Hansen J test fails to reject the null of valid overidentification restrictions (p=0.374), supporting instrument exogeneity. The Durbin-Wu-Hausman test rejects exogeneity of GERE (p=0.042), validating the IV approach.

The IV coefficient on GERE (0.397) exceeds the OLS estimate (0.284), consistent with attenuation bias from measurement error or negative selection (provinces with struggling tourism sectors may

receive compensatory government spending). The larger IV estimate suggests causal effects are even stronger than baseline correlations indicate.

**Heterogeneity Analysis**

Table 5 examines heterogeneous effects across provincial characteristics.

**Table 5: Subsample Analysis by Province Characteristics**

| Variable              | Coastal Provinces  | Inland Provinces    | High Natural Capital | Low Natural Capital |
|-----------------------|--------------------|---------------------|----------------------|---------------------|
| GERE                  | 0.312**<br>(0.143) | 0.267***<br>(0.089) | 0.341***<br>(0.112)  | 0.198*<br>(0.107)   |
| RQI                   | 1.643*<br>(0.892)  | 1.287**<br>(0.671)  | 1.521**<br>(0.743)   | 1.376**<br>(0.689)  |
| INFRA                 | 0.687*<br>(0.376)  | 0.943***<br>(0.321) | 1.043***<br>(0.342)  | 0.634**<br>(0.298)  |
| N                     | 198                | 369                 | 284                  | 283                 |
| R <sup>2</sup> within | 0.394              | 0.441               | 0.472                | 0.387               |

Notes: Dependent variable is ETDI. All specifications include controls, province FE, and year FE. Standard errors in parentheses. High/Low Natural Capital split at median forest coverage. \*  $p < 0.10$ , \*  $p < 0.05$ , \*\*\*  $p < 0.01$

Government spending effects are stronger in provinces with high natural capital endowments ( $\beta = 0.341$ ) versus low endowments ( $\beta = 0.198$ ), suggesting policy effectiveness depends on underlying resource base. Infrastructure investment matters more for inland provinces ( $\beta = 0.943$ ) than coastal areas ( $\beta = 0.687$ ), likely reflecting existing infrastructure advantages in coastal regions.

**Discussion**

Our findings provide robust empirical evidence for government's significant role in fostering ecotourism and agritourism development in Vietnam. Several insights merit emphasis.

*Policy Effectiveness and Mechanisms:* Government expenditure on environmental protection and rural development significantly enhances tourism outcomes through multiple channels. Direct mechanisms include funding for protected area management, tourism training programs, and marketing support. Indirect mechanisms operate through positive externalities: improved environmental quality benefits all tourism operators, while rural infrastructure reduces private sector costs. The stronger effects observed for agritourism revenue versus ecotourism indices may reflect agritourism's greater dependence on agricultural extension services and rural infrastructure, both government-provided public goods.

*Institutional Complementarities:* The strong moderating effect of institutional quality carries crucial implications. Government spending proves most effective when accompanied by transparent regulation, consistent enforcement, and low corruption. This aligns with broader development economics literature emphasizing institutional foundations for policy success (Acemoglu & Robinson, 2012). For Vietnam, this suggests that governance reforms complement - and may even be prerequisites for - effective tourism sector investment.

*Optimal Intervention Levels:* The inverted U-shaped relationships reveal important nonlinearities. While most Vietnamese provinces operate below optimal spending levels, the existence of diminishing returns argues against unlimited government expansion. Beyond approximately 14-15% of provincial budgets, additional spending yields declining marginal benefits. This may reflect coordination costs, bureaucratic inefficiencies, or crowding-out of private initiative - consistent with public choice theory's government failure warnings.

*Infrastructure as Foundation:* Infrastructure investment emerges as a critical complementary factor, particularly for inland provinces. Without adequate roads, telecommunications, and water systems, direct tourism policies prove less effective. This finding supports "development fundamentals" perspectives emphasizing basic infrastructure as prerequisite for sector-specific interventions (Pritchett, 2022).

*Regional Heterogeneity:* The substantial variation in policy effects across province types suggests one-size-fits-all approaches are suboptimal. Coastal provinces with existing infrastructure may benefit more from targeted environmental protection, while inland provinces require heavier infrastructure investment. High natural capital provinces show greater policy responsiveness, implying resource-based comparative advantages.

*Comparison with International Evidence:* Our findings parallel research from other developing countries showing positive government impacts on sustainable tourism (Kontogeorgopoulos et al., 2020), while the institutional moderation aligns with cross-country studies linking governance quality to tourism competitiveness (Font et al., 2021). The inverted U-shape relationship, though less commonly documented, resonates with broader literatures on optimal government size (Afonso & Furceri, 2010).

## **Conclusion and Policy Recommendations**

### **Summary of Findings**

This study provides comprehensive empirical evidence on government's role in ecotourism and agritourism development across Vietnamese provinces from 2015-2023. Using rigorous panel data methods and instrumental variables to address endogeneity, we establish several key findings. First, government expenditure on environmental protection and rural development significantly and positively affects multiple tourism development indicators. Second, regulatory quality and institutional capacity critically moderate these effects, with strong governance amplifying policy effectiveness. Third, the government-tourism relationship follows an inverted U-shape, with optimal intervention levels around 14-15% of provincial budgets. Fourth, infrastructure investment serves as an essential complementary factor, particularly for inland provinces. Fifth, policy effectiveness varies substantially across provincial contexts, with natural resource endowments and existing infrastructure shaping outcomes.

### **Theoretical Contributions**

Our study makes several theoretical contributions. We provide empirical support for institutional economics perspectives emphasizing complementarities between government intervention and governance quality, while simultaneously documenting nonlinear relationships consistent with public choice theory's government failure concerns. The findings bridge market failure justifications for intervention with practical constraints on intervention effectiveness. We extend sustainable tourism literature by distinguishing ecotourism and agritourism responses to policy, demonstrating that different tourism forms require tailored approaches. Our integration of spatial considerations and infrastructure fundamentals advances understanding of government's multifaceted role in tourism development.

### **Policy Recommendations**

Based on our findings, we offer evidence-based policy recommendations for Vietnamese policymakers:

1. *Increase Strategic Government Investment:* Most provinces operate below optimal spending levels for tourism development. Provincial governments should increase budget allocations for environmental protection and rural development toward the 14-15% threshold, while carefully monitoring marginal returns. National government can facilitate this through conditional grants tied to sustainable tourism objectives.

2. *Prioritize Governance Reforms:* Given strong institutional moderation effects, governance improvements may yield larger returns than spending increases alone. Specific reforms should include: (a) transparent licensing and certification systems for ecotourism/agritourism operators; (b) streamlined regulatory procedures reducing administrative burden; (c) anti-corruption measures in tourism administration; and (d) capacity building for local government officials in sustainable tourism management.

3. *Adopt Differentiated Provincial Strategies:* Our heterogeneity analysis demonstrates that optimal policies vary by provincial characteristics. Coastal provinces should emphasize environmental protection and quality standards, leveraging existing infrastructure. Inland provinces require front-loaded infrastructure investment in roads and telecommunications before sector-specific interventions prove effective. Provinces with rich natural capital should prioritize ecotourism, while those with strong agricultural traditions should focus on agritourism development.

4. *Invest in Rural Infrastructure as Foundation:* Infrastructure emerges as a critical precondition for tourism success, particularly in rural areas. Priority investments should include: (a) all-weather roads

connecting tourism sites to provincial centers; (b) broadband internet enabling online marketing and bookings; (c) water and sanitation systems meeting tourism standards; and (d) renewable energy infrastructure supporting off-grid ecotourism facilities.

*5. Strengthen Coordination Mechanisms:* The positive spillover effects from neighboring provinces suggest benefits from inter-provincial cooperation. Provincial governments should establish regional tourism networks for shared marketing, coordinated infrastructure planning, and knowledge exchange. National government can facilitate through regional development programs and cross-provincial funding mechanisms.

*6. Balance Government and Private Roles:* While government intervention proves beneficial, the inverted U-shaped relationships warn against excessive involvement. Government should focus on public goods provision (infrastructure, environmental protection, training) and market regulation, while enabling private sector entrepreneurship in service delivery. Public-private partnerships offer promising models for large-scale ecotourism projects.

*7. Establish Monitoring and Evaluation Systems:* To optimize intervention levels and improve policy targeting, provinces should implement comprehensive M&E systems tracking tourism sustainability indicators, environmental impacts, and community benefits. This evidence base enables adaptive management and continuous policy refinement.

*8. Integrate Tourism into Broader Development Strategies:* Ecotourism and agritourism should be integrated with agricultural modernization, rural poverty reduction, and environmental conservation programs. Cross-sectoral coordination among agriculture, environment, culture, and tourism ministries maximizes synergies and reduces fragmentation.

### **Limitations and Future Research Directions**

Several limitations qualify our findings and suggest directions for future research. First, while our instrumental variable approach addresses key endogeneity concerns, unmeasured confounders may remain. Quasi-experimental designs exploiting policy discontinuities or randomized controlled trials could strengthen causal inference. Second, data constraints limited our ability to disaggregate government expenditure into specific program types. Future research with more granular administrative data could identify which specific interventions prove most effective. Third, our province-level analysis masks within-province variation in tourism development. District or commune-level studies could reveal finer-grained patterns. Fourth, we focused on quantitative outcomes while qualitative dimensions - community participation, cultural preservation, tourist satisfaction - merit investigation through mixed methods. Fifth, our nine-year panel captures medium-term effects but cannot assess long-term sustainability or potential delayed impacts.

Future research should explore several extensions. First, comparative studies across Southeast Asian countries could test generalizability of our findings and identify region-specific patterns. Second, firm-level microdata could illuminate how government policies affect individual operator behavior and performance. Third, environmental impact assessments could directly measure ecological sustainability rather than relying on compliance indicators. Fourth, social network analysis could map stakeholder coordination patterns and identify optimal governance structures. Fifth, dynamic modeling incorporating feedback loops between tourism development, environmental change, and policy responses could enhance understanding of long-term dynamics.

### **Concluding Remarks**

This study demonstrates that government plays a significant, nuanced, and context-dependent role in fostering ecotourism and agritourism development in Vietnam. Neither pure market mechanisms nor unlimited government intervention represents an optimal strategy. Instead, strategic government investment in public goods, institutional development enabling market function, and context-sensitive policy design offer pathways to sustainable tourism development. As Vietnam pursues ambitious sustainable development goals while navigating middle-income transition challenges, evidence-based tourism policies can simultaneously advance economic prosperity, environmental conservation, and social equity.

The COVID-19 pandemic's devastating impact on global tourism, followed by recovery, has heightened awareness of tourism sector vulnerabilities and the importance of sustainable, resilient models. Ecotourism and agritourism, with their emphasis on local resources, community involvement, and environmental stewardship, offer promising alternatives to mass tourism's fragility. Government's

role in catalyzing this transition - while avoiding the pitfalls of overreach - will prove critical for Vietnam and comparable developing countries seeking to harness tourism for inclusive, sustainable development.

## References

1. Acemoglu, D., & Robinson, J. A. (2012). *Why nations fail: The origins of power, prosperity, and poverty*. Crown Business.
2. Afonso, A., & Furceri, D. (2010). Government size, composition, volatility and economic growth. *European Journal of Political Economy*, 26(4), 517-532.
3. <https://doi.org/10.1016/j.ejpoleco.2010.02.002>
4. Buckley, R. (2018). Tourism and environment. *Annual Review of Environment and Resources*, 36, 397-416. <https://doi.org/10.1146/annurev-environ-041020-063548>
5. Cellini, R., & Cuccia, T. (2023). Do behaviours in cultural markets affect economic resilience? An analysis of Italian regions. *European Planning Studies*, 31(1), 158-177.
6. <https://doi.org/10.1080/09654313.2021.1980502>
7. Chien, F., Sadiq, M., Nawaz, M. A., Hussain, M. S., Tran, T. D., & Le Thanh, T. (2021). A step toward reducing air pollution in top Asian economies: The role of green energy, eco-innovation, and environmental taxes. *Journal of Environmental Management*, 297, 113420.
8. <https://doi.org/10.1016/j.jenvman.2021.113420>
9. Cracolici, M. F., & Nijkamp, P. (2009). The attractiveness and competitiveness of tourist destinations: A study of Southern Italian regions. *Tourism Management*, 30(3), 336-344.
10. <https://doi.org/10.1016/j.tourman.2008.07.006>
11. Evans, P. (1995). *Embedded autonomy: States and industrial transformation*. Princeton University Press.
12. Font, X., Garay, L., & Jones, S. (2021). Sustainability motivations and practices in small tourism enterprises in European protected areas. *Journal of Cleaner Production*, 137, 1439-1448.
13. <https://doi.org/10.1016/j.jclepro.2020.137801>
14. Gössling, S., Scott, D., & Hall, C. M. (2020). Pandemics, tourism and global change: A rapid assessment of COVID-19. *Journal of Sustainable Tourism*, 29(1), 1-20.
15. <https://doi.org/10.1080/09669582.2020.1758708>
16. Hall, C. M. (2019). *Tourism planning: Policies, processes and relationships* (3rd ed.). Routledge.
17. Higgins-Desbiolles, F., Carnicelli, S., Krolkowski, C., Wijesinghe, G., & Boluk, K. (2019). Degrowing tourism: Rethinking tourism. *Journal of Sustainable Tourism*, 27(12), 1926-1944.
18. <https://doi.org/10.1080/09669582.2019.1601732>
19. Jaafar, M., Noor, S. M., & Rasoolimanesh, S. M. (2020). Perception of young local residents toward sustainable conservation programmes: A case study of the Lenggong World Cultural Heritage Site. *Tourism Management*, 42, 471-481. <https://doi.org/10.1016/j.tourman.2019.104287>
20. Kontogeorgopoulos, N., Churyen, A., & Duangsaeng, V. (2020). Success factors in community-based tourism in Thailand: The role of luck, external support, and local leadership. *Tourism Planning & Development*, 17(1), 106-124. <https://doi.org/10.1080/21568316.2014.951404>
21. Krueger, A. O. (1974). The political economy of the rent-seeking society. *American Economic Review*, 64(3), 291-303.
22. Nguyen, T. Q. T., & Tran, T. C. (2023). Government intervention and sustainable tourism development in Vietnam: A provincial analysis. *Asia Pacific Journal of Tourism Research*, 28(3), 245-262. <https://doi.org/10.1080/10941665.2023.2178934>
23. Nguyen, T. T., Pham, H. V., & Tran, T. D. (2021). Local governance and tourism development in Vietnam: Evidence from coastal provinces. *Tourism Management Perspectives*, 38, 100824. <https://doi.org/10.1016/j.tmp.2021.100824>
24. Nguyen, X. T., Luong, B. T., & Hoang, D. P. (2022). Inter-governmental coordination in tourism development: Lessons from Vietnam. *Public Administration and Development*, 42(4), 245-258. <https://doi.org/10.1002/pad.1976>
25. North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge University Press.
26. Nunkoo, R., & Smith, S. L. J. (2013). Political economy of tourism: Trust in government actors, political support, and their determinants. *Tourism Management*, 36, 120-132. <https://doi.org/10.1016/j.tourman.2012.11.018>
27. Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science*, 325(5939), 419-422. <https://doi.org/10.1126/science.1172133>
28. Painter, M. (2020). The politics of economic restructuring in Vietnam: The case of state-owned enterprise reform. *Contemporary Southeast Asia*, 42(1), 95-120. <https://doi.org/10.1355/cs42-1e>
29. Pham, H. S., Dong, T. K. T., & Nguyen, H. M. (2022). Green tourism development and environmental protection in Vietnam: Policies and practices. *Environmental Science and Pollution Research*, 29(25), 37142-37156. <https://doi.org/10.1007/s11356-021-17683-4>
30. Phillip, S., Hunter, C., & Blackstock, K. (2010). A typology for defining agritourism. *Tourism Management*, 31(6), 754-758. <https://doi.org/10.1016/j.tourman.2009.08.001>

31. Pike, S., & Page, S. J. (2014). Destination marketing organizations and destination marketing: A narrative analysis of the literature. *Tourism Management*, 41, 202-227.
32. <https://doi.org/10.1016/j.tourman.2013.09.009>
33. Pritchett, L. (2022). National development delivers: And how! The shifting sands of development discourse leave capability for implementation buried. *The European Journal of Development Research*, 34(3), 1441-1464. <https://doi.org/10.1057/s41287-022-00527-9>
34. Rasoolimanesh, S. M., Ramakrishna, S., Hall, C. M., Esfandiar, K., & Seyfi, S. (2021). A systematic scoping review of sustainable tourism indicators in relation to the sustainable development goals. *Journal of Sustainable Tourism*, 31(7), 1497-1517.
35. <https://doi.org/10.1080/09669582.2020.1775621>
36. Rodrik, D. (2008). *One economics, many recipes: Globalization, institutions, and economic growth*. Princeton University Press.
37. Scheyvens, R., & Hughes, E. (2019). Can tourism help to "end poverty in all its forms everywhere"? The challenge of tourism addressing SDG1. *Journal of Sustainable Tourism*, 27(7), 1061-1079.
38. <https://doi.org/10.1080/09669582.2018.1551404>
39. Sharpley, R., & Telfer, D. J. (Eds.). (2015). *Tourism and development: Concepts and issues* (2nd ed.). Channel View Publications.
40. Song, H., Dwyer, L., Li, G., & Cao, Z. (2018). Tourism economics research: A review and assessment. *Annals of Tourism Research*, 42, 15-41. <https://doi.org/10.1016/j.annals.2018.10.001>
41. The International Ecotourism Society. (2019). What is ecotourism? <https://ecotourism.org/what-is-ecotourism/>
42. Tran, L. T., Walter, P., & Coulter, J. (2020). Ecotourism development in Vietnam: Institutional structures and institutional reconciliation. *Journal of Ecotourism*, 19(3), 195-211.
43. <https://doi.org/10.1080/14724049.2019.1686048>
44. Truong, V. D., Ngo, H. M., Nguyen, H. T., & Le, P. T. (2020). Government support and agritourism development in rural Vietnam. *Journal of Rural Studies*, 78, 526-537.
45. <https://doi.org/10.1016/j.jrurstud.2020.08.007>
46. World Bank. (2022). *Vietnam: Toward a market economy - Country economic memorandum*. World Bank Group.
47. Zhang, H., Fan, D. X. F., Tse, T. S. M., & King, B. (2019). Corruption and tourism development: Evidence from panel data. *Current Issues in Tourism*, 22(16), 2019-2047.
48. <https://doi.org/10.1080/13683500.2017.1343807>
49. Zolfani, S. H., Sedaghat, M., Maknoon, R., & Zavadskas, E. K. (2021). Sustainable tourism: A comprehensive literature review on frameworks and applications. *Economic Research-Ekonomiska Istraživanja*, 28(1), 1-30. <https://doi.org/10.1080/1331677X.2021.1867860>