

Evaluating the impact of government policies on tourist satisfaction in Vietnam: A Generalized Structured Component Analysis (GSCA) approach

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ABSTRACT

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This research evaluates the impact of government policies on tourist satisfaction in Vietnam using Generalized Structured Component Analysis. It explores critical factors like infrastructure development, environmental conservation, safety, and cultural preservation, identifying them as key determinants of tourist satisfaction. The study highlights the essential role of government initiatives in these areas to improve the tourist experience. Findings indicate that effective policies in infrastructure, environmental protection, and cultural heritage preservation are crucial for sustainable tourism growth. Ensuring safety and security fosters trust and encourages repeat visits. These insights provide practical recommendations for policymakers and industry stakeholders to develop strategies that enhance tourist satisfaction and strengthen Vietnam's competitive position in the global tourism market. Collaboration among government authorities, private entities, and local communities is essential to address these challenges. By prioritizing sustainable tourism practices and aligning policies with tourist expectations, Vietnam can achieve long-term growth in its tourism sector while preserving cultural and natural assets. This study offers a comprehensive framework for understanding the relationship between government policies and tourist satisfaction, aiding strategic planning and policy formulation to enhance Vietnam's appeal as a premier travel destination.

1. Introduction

Vietnam's booming tourism industry has become the cornerstone of its economic growth (Bui & Le, 2016; Lai & Nguyen, 2013). Understanding the determinants of tourist satisfaction is essential for the sustainable development of the tourism sector. Satisfied tourists help the sector succeed by spreading positive word-of-mouth, increasing income, and improving destination reputation (Allameh et al., 2015; Cortés-Jiménez & Pulina, 2010; Meng et al., 2008; Nguyen, Nguyen, et al., 2020). In particular, positive experiences encourage repeated visits and recommendations, leading to economic benefits for local businesses (Jang & Feng, 2007). In contrast, unfavorable encounters can harm a destination's reputation and deter new tourists (Huang & Hsu, 2010; Meng et al., 2008).

Previous research on tourist satisfaction in Vietnam has assessed the impact of government policies, highlighting service quality, infrastructure, safety, and cultural conservation as key factors

(Nguyen, Nguyen, et al., 2020; Nguyen, Le, et al., 2020; Vo et al., 2020). However, the literature lacks clarity on the most crucial policies and their mechanisms. This study identified the most impactful government measures for tourist satisfaction and evaluated their effects on tourist experiences in Vietnam. This study aims to guide policymakers in effective investment and improve government interventions to enhance competitiveness and promote sustainable tourism.

This study contributes to the literature on tourist satisfaction in Vietnam by identifying key factors, including infrastructure, environmental protection, safety, security, and cultural preservation, and investigating their connections to government policies. It seeks to enhance the understanding of methods for boosting tourist satisfaction and its impact on sustainable tourism growth. Improved transportation systems can increase tourist comfort and facilitate income distribution by simplifying access to various regions. Effective environmental conservation maintains the attractiveness of natural wonders, which is essential for ecotourism. Safe environments increase visitor confidence and promote longer stays and repeat visits, which are crucial for sustainable economic gain. Cultural preservation enhances tourist enjoyment and boosts local morale, and is vital for cultural tourism, which is a significant source of income for sustainable development. The findings of this study can guide strategies and policies aimed at achieving sustainable development of Vietnam's global tourism industry.

2. Theoretical basis

2.1. Definition of tourist satisfaction

Tourist satisfaction encompasses the overall content of a destination, its products, or services (Meng et al., 2008; Nguyen, Ho, et al., 2020; Nguyen, 2021). It includes the quality of facilities, services, attractions, and perceived value of money (Ha et al., 2020; Nguyen, Nguyen, et al., 2020; Nguyen, Le, et al., 2020; Ray & Rahman, 2016). Understanding tourist satisfaction helps identify improvement areas and measure the success of tourism offerings (Bui & Le, 2016; Nguyen, Le, et al., 2020).

2.2. Factors that create tourist satisfaction

Expectancy Disconfirmation Theory (EDT) is a crucial framework for evaluating customer satisfaction in tourism, focusing on how expectations about product or service quality influence contentment (Spreng & Page, 2003). EDT posits that satisfaction hinges on alignment with pre-tour expectations (Ray & Rahman, 2016). Research in Vietnam and elsewhere underscores the role of service quality in tourist satisfaction, aligning with EDT (Ha et al., 2020; Kowalska & Ostrega, 2020; Nguyen, Ho, et al., 2020; P.J. et al., 2023; Weng et al., 2023).

Parasuraman et al. (1985) SERVQUAL model examines the gap between expected and actual performance using five dimensions-responsiveness, reliability, assurance, empathy, and tangibility- to assess perceived service quality. This model has been widely applied in studies on tourist satisfaction (Parasuraman et al., 1988).

Social Exchange Theory (SET) highlights the role of interpersonal relationships and social interactions in determining tourist satisfaction (Abbasian et al., 2023). Many studies have used the destination image variable to explore its regression relationship with tourist satisfaction within the SET framework (Ahmad et al., 2021; Chia et al., 2021).

2.3. Relationship between tourist satisfaction and government policies

Government policies that aim to ensure tourist satisfaction significantly impact the tourism sector (Jumadi et al., 2022). These policies encompass infrastructure development,

environmental conservation, safety, security, and cultural preservation (Yusof et al., 2012). Aligning these policies with tourists' desires can enhance their satisfaction and experience (Jumadi et al., 2022). However, policy impacts vary among tourist segments. For instance, Western tourists prioritize environmental and cultural conservation, whereas Asian tourists from neighboring countries focus on affordable prices and efficient transport. Understanding the needs of a target audience is crucial for developing appropriate strategies. This study systematically analyzed data to explore the interplay between government policies, tourist satisfaction, and different tourist types.

Gaps remain in understanding the factors influencing tourist satisfaction and the role of government policies in this context. Further research is needed to determine how government policies affect tourist experience and satisfaction in Vietnam's tourism industry.

3. Methodology

3.1. Data

Data from domestic and international tourists were collected using convenience sampling at key Vietnamese destinations: Ho Chi Minh City, Hanoi, Danang, and Nha Trang. These locations were selected for their diverse tourism offerings and economic importance. Ho Chi Minh City, the largest urban center, is a major economic and cultural hub attracting business and urban history tourists. Hanoi provides a rich historical and cultural experience. Danang's beautiful beaches and infrastructure attract beach lovers, while Nha Trang is known for excellent diving sites and vibrant nightlife. A structured questionnaire based on the research model was created to identify the variables affecting tourist satisfaction in both English and Vietnamese.

The questionnaire comprised two sections: demographic and travel-related variables (age, gender, nationality, education, purpose of visit, length of stay, travel companions) and constructs of the research model using a 5-point Likert scale (1 = strong disagreement, 5 = strong agreement). The measurement items were adapted from (Nguyen, Nguyen, et al., 2020). A pilot test with 50 tourists ensured clarity, leading to revisions in the participant feedback. Data collection from August 08 to October 24, 2023, targeted visitors to hotels, restaurants, tourist attractions, and airports. Of the 550 distributed questionnaires, 510 were returned, with 482 valid responses, resulting in an 87.6% response rate.

This study included 58% women and 42% men. Age distribution: 45% aged 25 - 34, 28% aged 35 - 44, 15% aged 18 - 24, and 12% aged above 44. Nationalities: 60% domestic tourists and 40% international tourists from China, South Korea, Japan, the United States, and Europe. International tourists were further classified as "Asian Tourists" (China, South Korea, Japan) and "Western Tourists" (the United States, Europe). Education level: 65% had a bachelor's degree, 25% had postgraduate degrees, and 10% had high school education or below. Visiting purposes included leisure and holidays (75%), business (15%), and other reasons (10%).

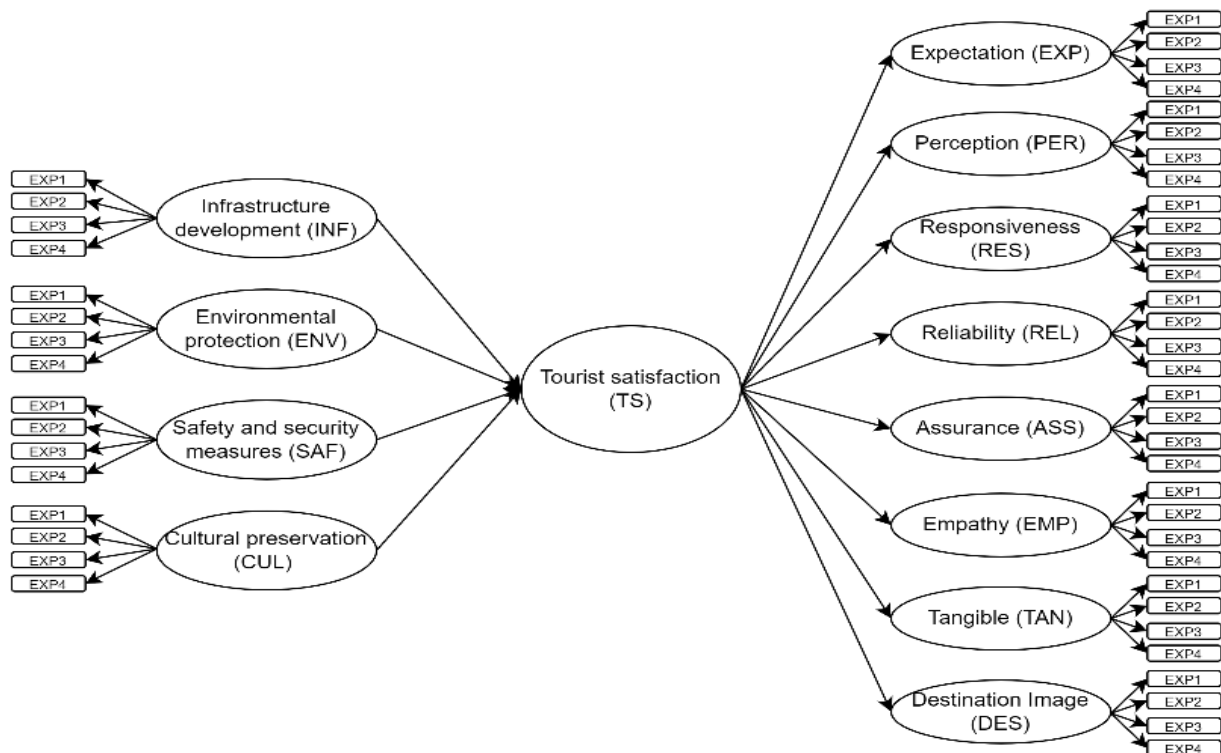
A sample size of 482 was adequate for Generalized Structured Component Analysis (GSCA), exceeding the recommended minimum of 200 observations (Hwang et al., 2017). Additionally, the diverse demographics of the respondents enhanced the credibility and applicability of the study to all tourists in Vietnam.

3.2. Research model

To analyze the impact of the government's policies on tourist satisfaction, the following analysis model was used:

Figure 1

Research Model



Source. Author’s suggestion

3.3. Analysis methods

This cross-sectional study used Generalized Structured Component Analysis (GSCA) with GSCA Pro 1.2.1 software, as it suits the research questions and offers advantages over CB-SEM, which requires a larger sample size (n = 482). GSCA is more flexible for non-normal data, which is common in social science research, and is ideal for complex models with numerous factors and relationships. It relies on component variance, making it suitable for exploratory and predictive studies. Although PLS-SEM is another component-based method, GSCA provides methodological benefits in model fit evaluation and handling complex relationships, offering various fit indices (FIT, FITs, FITm, GFI, and SRMR) to assess model adequacy. Considering the research objectives, model complexity, and potential non-normality of the data, GSCA is the most appropriate method. The following tests were conducted to ensure research reliability.

Outer loadings, which measure the correlation between manifest and latent variables, assess the quality of the observed variables in the GSCA (Hair et al., 2022). Loadings ≥ 0.7 significantly contribute to the construct, while values between 0.5 and 0.7 may be acceptable in preliminary research or new constructs (Hair et al., 2019; Sarstedt et al., 2022). Variables with loadings ≤ 0.5 should be considered for removal due to potential negative impacts on model reliability and validity (Sarstedt et al., 2022).

Reliability was assessed using Cronbach’s Alpha (≥ 0.7 , adequate) and Dillon-Goldstein’s rho (≥ 0.7 , sufficient reliability), which consider item-to-item correlations and errors (Chin, 2010; Nunnally & Bernstein, 1994; Sarstedt et al., 2022; Vinzi et al., 2010; Wong, 2019).

Convergent validity, which assesses shared variance among a construct’s observed variables, is measured using Average Variance Extracted (AVE) or Percentage of Variance

Explained (PVE) (Hair et al., 2010; Sarstedt et al., 2022). An AVE ≥ 0.5 , indicating satisfactory convergent validity, shows that the construct explains at least 50% of the variance in its observed variables (Fornell & Larcker, 1981; Hair et al., 2010). An AVE < 0.5 suggests measurement error explains more variance than the construct, questioning validity and requiring reassessment of observed variables or theoretical foundations (Hair et al., 2010; Sarstedt et al., 2022).

Convergent validity (AVE) measures the shared variance among a construct's variables and the variability explained by its indicators (Fornell & Larcker, 1981; Hair et al., 2010; Sarstedt et al., 2022). An AVE of 0.5 or higher indicates sufficient convergent validity, capturing at least 50% of the indicator variance and showing high variable correlation within a construct (Hair et al., 2010; Sarstedt et al., 2022). An AVE below 0.5 suggests greater measurement error variance, necessitating a review of observed variables or the construct's theoretical definition (Hair et al., 2010; Sarstedt et al., 2022). Testing convergent validity ensures adequate variable correlation and provides reliable and valid construct measurements that support GSCA's results and overall validity.

Discriminant validity assesses a construct's distinctiveness from others in a model, ensuring low correlation with other constructs (Henseler et al., 2015; Sarstedt et al., 2022). The Fornell and Larcker criterion (Fornell & Larcker, 1981) verifies whether the square root of each construct's AVE exceeds its correlation with others, ensuring that a construct shares more variance with its indicators than other constructs (Sarstedt et al., 2022). If a construct's AVE square root is lower than its correlations with other constructs, it indicates insufficient differentiation, requiring examination of observed variables, theoretical foundations, or construct relationships (Sarstedt et al., 2022).

Overall Model Fit

FIT Index: The FIT Index reflects the proportion of variance in the observed data explained by the model, with values close to one indicating a better model fit, although no standard exists for this index (Hwang et al., 2017).

Structure Fit Index (FITs): This index measures the ratio of explained variance to observed variance, with values close to one indicating a better fit. Similar to the FIT index, there is no established cutoff for FITs (Hwang et al., 2017).

Model Fit Index (FITm): The FITm index evaluates the model's goodness of fit by considering the number of observed variables and estimated parameters. Values near one suggest a better fit, with a value of 0.7 or higher indicating a strong fit (Hwang et al., 2017).

The Goodness-of-fit Index (GFI) measures the proportion of variance and covariance explained by the model, with values ranging from 0 to 1. A value above 0.9 indicates an adequate fit (Hwang et al., 2017).

Standardized Root Mean Square Residual (SRMR): SRMR assesses the extent to which the observed correlations deviate from the model's predicted correlations. An SRMR below 0.08 indicates a good fit (Hwang et al., 2017).

Multiple fit indices are essential for evaluating the goodness of fit of the GSCA because each index assesses different aspects of the model's alignment with the data. Although FIT and FITs lack defined thresholds, FITm, GFI, and SRMR provide benchmarks for model fitness.

Coefficient of determination (R^2): In tourism and hospitality research, R^2 assesses the model fit and individual variable influence, indicating the proportion of Y variable variance

explained by X variables (Assaf & Tsionas, 2019; Sarstedt et al., 2022). Henseler et al. (2009) offer R^2 benchmarks, as follows:

- Substantial: $R^2 \geq 0.67$
- Moderate: $0.33 \leq R^2 < 0.67$
- Weak: $0.19 \leq R^2 < 0.33$
- Unacceptable: $R^2 < 0.19$

The R^2 relevance varies with the research context and model (Sarstedt et al., 2022). Low R^2 values are permissible in exploratory studies or with variable dependent variables (Assaf & Tsionas, 2019). When comparing models, adjusted R^2 is used to account for regressor numbers (Assaf & Tsionas, 2019). Standardized path coefficients (beta coefficients) and their significance indicate the predictive relevance of independent variables (Sarstedt et al., 2022). Presenting R^2 values should reflect the study context, variable nature, and theoretical framework. Researchers must evaluate the implications of R^2 for study objectives and their practical significance (Sarstedt et al., 2022). The minimal acceptable R^2 is 0.19 (Henseler et al., 2009); values ≤ 0.19 suggest poor model explanatory power, but consider research and model complexity when applying this threshold.

4. Result and discussion

4.1. Result

4.1.1. Quality of observed variables

All observed variables had outer loadings > 0.7 , indicating significant contributions to their constructs. Variables such as DES1, PER1, ENV1, SAF1, CUL1, and TAN1 exhibited high outer loadings (> 0.9), indicating their crucial roles in the measurement model. The lowest outer loading was observed for INF4 (0.688), which is still within the acceptable range of 0.5 and above. High outer loadings suggest that the observed variables accurately measured their respective constructs.

Standard Errors (SE): The standard errors for all variables were low (ranging from 0.003 to 0.027), indicating high estimation accuracy. Variables with higher outer loadings had lower standard errors, demonstrating consistent measurements and accurate estimations of outer loadings.

All 95% confidence intervals were narrow, indicating strong confidence in the estimated outer loadings of the factors. The reliability of the measurements was reinforced, with all lower limits exceeding 0.5, suggesting a low likelihood of estimation errors.

The GSCA results indicate a robust measurement model with high outer loadings, low standard errors, narrow confidence intervals, and strong reliability. Therefore, the measurement scales used in this research are reliable and valid, providing a solid foundation for further analysis of construct relationships.

4.1.2. Reliability scale

Based on the results of the reliability scale analysis shown in Table 1, the following observations can be made.

All constructs demonstrated high convergent validity with PVE values exceeding 0.7, ranging from 0.715 for EXP to 0.779 for SAF. The PVE, indicating how well the observed

variables represent the latent variable, shows good convergent validity when above 0.7, ensuring that the indicators accurately measure the same construct.

Cronbach's Alpha: All constructs exhibited Cronbach's Alpha values above 0.7, demonstrating adequate internal consistency and reliability. The alpha values ranged from 0.790 for INF to 0.905 for SAF, indicating a high item-to-item correlation for each construct. Cronbach's Alpha measures scale reliability, with values of 0.7 and above reflecting consistent measurement of the same construct by the items.

Composite Reliability (Rho): All constructs exhibited rho values exceeding 0.8, demonstrating excellent reliability. Specifically, rho values were 0.863 for INF and 0.934 for SAF, indicating that the observed variables accurately represented their respective constructs. Composite reliability (rho), a more reliable measure of internal consistency than Cronbach's Alpha, especially with varying item numbers per factor, suggests that values above 0.7, and in this case, above 0.8, indicate high reliability.

Reliability scale analysis confirmed strong support for convergent validity, internal consistency, and construct reliability for all constructs in this study. High PVE values indicate that the variables within each construct accounted for most of the variance. This is corroborated by the high Cronbach's Alpha and composite reliability values, demonstrating that the items are closely related and reliable measures of the constructs. These results enhance the reliability and validity of the measurement model, enabling further analysis of the relationships between constructs.

Table 1

Scale Validity

	EXP	PER	RES	REL	ASS	EMP	TAN	DES	INF	EVN	SAF	CUL	SOC
PVE	0.715	0.724	0.728	0.746	0.743	0.716	0.722	0.742	0.717	0.765	0.779	0.773	0.745
Alpha	0.867	0.873	0.875	0.886	0.884	0.867	0.871	0.884	0.790	0.896	0.905	0.901	0.886
Rho	0.909	0.913	0.915	0.921	0.920	0.910	0.912	0.920	0.863	0.928	0.934	0.931	0.921

Source. Analysis results from JASP software

4.1.3. Overall model fit

Based on the results of the Overall Model Fit analysis shown in Table 2, the following observations can be made.

A FIT value of 0.600 indicates that the model accounts for 60% of the total data variance. There are no strict criteria for a good fit. The FIT index is a primary measure of fit, offering a general assessment of how well the model aligns with the observed data. Although it lacks a fixed threshold, it is considered alongside other fit indices.

Adjusted FIT Index (AFIT): The AFIT value of 0.598 is slightly lower than the FIT value owing to its consideration of model complexity. However, a high AFIT value indicates a good model fit. FIT adjusts FIT to account for the number of estimated parameters, penalizes models with more parameters, and makes it useful for comparing models with different variable quantities.

A Structure FIT Index (FITs) value of 0.546 indicates that the model explains 54.6% of the scaled total variance, indicating an average fit. Despite being lower than the FIT and AFIT

values, FITs standardize the variance explained by the model. It lacks a fixed cutoff and is used alongside other indices.

An FITm of 0.732 indicated a good model fit because it exceeded the threshold of 0.7. FITm, which considers the number of measured variables and estimated parameters, offers an accurate assessment of the model fit. Values above 0.7 signify that the model appropriately represents the data and its complexity.

A GFI of 0.982, nearly 1, indicated an excellent model fit. GFI values above 0.9 are considered reasonable, with those near 1.0 ideal. The GFI represents the ratio of the variance-covariance matrix of the observed variables to the estimated covariance matrix. Values closer to 1 are preferable, and those than 0.9 are generally deemed reasonable.

The SRMR value of 0.032 was within the recommended range of 0.08, indicating a good model fit. A lower SRMR value is preferred because it indicates that the model's predicted correlations are closer to the observed correlations. SRMR, a fit index, calculates the average squared differences between the observed and model-implied correlations. Values below 0.08 suggest an adequate fit, while those below 0.05 indicate a stringent fit between the model and the data.

The Overall Model Fit findings demonstrate a good fit, accurately predicting data variance, as shown by the FIT, AFIT, and FITs statistics. The FITm, GFI, and SRMR values exceeded the recommended thresholds, confirming the adequacy of the model in capturing the data structure and supporting reliable conclusions regarding construct relationships. High FITm, GFI, and SRMR values validated the effectiveness of the model in analyzing these relationships.

Table 2

Model Relevance Values

FIT	AFIT	FITs	FITm	GFI	SRMR
0.600	0.598	0.546	0.732	0.982	0.032

Source. Analysis results from JASP software

4.1.4. Path analysis

The results of the Path Coefficient analysis in Table 3 lead to the following conclusions.

INF → TS: The path coefficient from INF to TS is 0.664, indicating a strong positive relationship. A Standard Error (SE) of 0.050 indicates accurate estimation. A 95% Confidence Interval (CI) of 0.544 to 0.744, excluding '0,' confirmed statistical significance. An F^2 value of 0.588 indicated a large effect size, indicating that INF significantly affected TS. Infrastructure significantly influences tourist satisfaction in Vietnam, with tourists prioritizing the quality and quantity of transport, lodging, and amenities. Recent upgrades to Vietnam's tourism infrastructure are likely to increase tourist expectations. Furthermore, good infrastructure improves mobility and access to diverse destinations, thereby enhancing the tourist experience.

EVN → TS: The path coefficient from EVN to TS (0.275) indicated a moderately positive correlation with a small SE (0.050), suggesting precise estimates. The 95% CI [0.206, 0.371] excluded zero, confirming statistical significance, whereas the F^2 index (0.206) implied a medium effect size, indicating that EVN had a moderate influence on TS. Tourists prioritize infrastructure over cleanliness, although they value clean environments. Despite Vietnam's

environmental advancements, pollution and weak law enforcement have hindered tourist satisfaction. However, a positive correlation showed that environmental factors significantly affected the tourists' experiences.

SAF → TS: The path coefficient from SAF to TS was 0.292, indicating a moderate positive correlation. A small SE of 0.055 indicates precision. The 95% CI (0.217 - 0.386) excluded zero, confirming statistical significance. An F^2 index of 0.219 suggests a moderate effect of SAF on TS. The safety and security subfactor SAF moderately influenced tourist satisfaction, with infrastructure and cultural experiences being more impactful. Vietnam's reputation as a safe destination may lessen the importance of safety for satisfaction. However, maintaining and enhancing safety measures is essential for a worry-free tourist experience.

CUL → TS: The correlation coefficient between CUL and TS ($\beta = 0.360$, $SE = 0.038$, 95% CI [0.223, 0.413]) indicated a moderate, statistically significant relationship with a medium effect size ($F^2 = 0.234$). The moderate-to-strong influence of culture on tourist satisfaction highlights the importance of Vietnam's culture in attracting tourists. Tourists are particularly interested in historical monuments, cultural displays, and local culture. Thus, maintaining and developing cultural landmarks is crucial for enhancing tourist satisfaction.

Path Coefficient analysis indicated a notable positive correlation between INF, EVN, SAF, CUL, and TS, with INF having the highest connection, followed by CUL, SAF, and EVN. Minimal standard errors and 95% confidence intervals that did not encompass zero confirmed the reliability and significance of the results. The F^2 values suggest medium to large effect sizes, underscoring their relevance to the model. Prioritizing infrastructure development, environmental protection, safety, security, and cultural preservation is crucial for boosting tourist satisfaction.

Table 3

Path Coefficient of the Model

Variable	β	SE	95%CI		F^2
INF→TS	0.664	0.050	0.544	0.744	0.588
EVN→TS	0.275	0.050	0.206	0.371	0.206
SAF→TS	0.292	0.055	0.217	0.386	0.219
CUL→TS	0.360	0.038	0.223	0.413	0.234

Source. Analysis results from JASP software

4.2. Discussion

The results indicated significant positive relationships between infrastructure development (INF), environmental protection (EVN), safety measures (SAF), cultural preservation (CUL), and Tourist Satisfaction (TS), with all regression coefficients significant at the 95% confidence level. INF had the greatest effect on TS, followed by CUL, SAF, and EVN. These findings align with those of previous studies (Assaker et al., 2011; Jumadi et al., 2022), which emphasize the role of infrastructure in tourism (Castellani & Sala, 2010; Yusof et al., 2012). SAF and EVN also significantly moderated TS, consistent with Bui and Le (2016), Ha et al. (2020) on safety, and Nguyen, Nguyen, et al. (2020), Nguyen, Le, et al. (2020) on environmental consciousness. This study uniquely examines these factors within Vietnam's tourism industry using a Generalized Structured Component Analysis (GSCA) to ensure reliability and validity.

This study contributes to the literature by exploring the interrelationships between infrastructure development, environmental protection, safety measures, and cultural preservation, providing a comprehensive understanding of the factors influencing tourist satisfaction in Vietnam. INF had the greatest impact (0.664), reflecting the importance of tourism infrastructure for convenience and efficiency. EVN had a lower impact (0.275), likely due to ongoing environmental issues in Vietnam, despite sustainable tourism efforts. Although tourists prefer a clean environment, this is less critical than other factors, highlighting the need for environmental conservation to improve satisfaction.

The GSCA, suitable for complex models and non-normal datasets, determines the strength of the relationships between constructs and assesses model fit using indices (FIT, AFIT, FITm, GFI, and SRMR). An FITm index of 0.732 indicated a reasonable model fit, with a GFI of 0.982 and SRMR of 0.032, confirming an excellent model fit with the data.

Government policies regulating Vietnam's tourism industry have significantly affected tourist satisfaction, sustainability, and competitiveness. This study investigates the role of policies related to infrastructure, environment, safety, and cultural management in shaping tourist experiences. These findings offer insights for policymakers and stakeholders to develop targeted strategies, enhance tourist satisfaction, and foster the growth and sustainability of Vietnam's tourism industry.

5. Conclusions & recommendations

This study aimed to identify the key factors influencing tourist satisfaction in Vietnam's tourism industry. These findings underscore the importance of meeting tourists' expectations, providing high-quality services, and cultivating positive social relationships for a memorable experience. This study also highlights the crucial role of government policies in determining tourist satisfaction.

5.1. Conclusions

The GSCA findings and statistical analyses conclude that INF has the greatest positive impact on TS, underscoring the importance of infrastructure for enhancing the tourist experience. CUL showed a moderate to high positive correlation with TS, highlighting the value of culture for tourists. SAF and EVN have a moderately positive impact on TS, indicating their relevance to tourists' perceptions and satisfaction. Government policies can significantly influence tourist satisfaction through effective infrastructure, environmental conservation, safety, security, and cultural heritage. This study contributes to the literature on tourist satisfaction in Vietnam by integrating infrastructure, environmental protection, safety, security, and cultural preservation into a single model. This approach offers a comprehensive understanding of the factors influencing tourist satisfaction in Vietnam, surpassing prior research, which has typically examined fewer factors. Given Vietnam's diverse attractions, this is crucial for the tourism industry. Additionally, the GSCA provides a robust methodology for assessing these relationships and yields a more accurate measure of model fit than traditional methods. These findings are valuable for policymakers and industry stakeholders in Vietnam to enhance tourist satisfaction and promote sustainable tourism.

5.2. Recommendations

Infrastructure development, government and industry commitment to transportation, temporary shelters, and tourist attractions should be prioritized. Upgrading airports, high-speed railways, and urban transportation can enhance access for tourists and reduce congestion. Visitor management systems at heritage sites should be improved for crowd control, conservation, and satisfaction (Sonam et al., 2024). Preserving cultural heritage involves conserving historical

sites, promoting traditional arts and crafts, and integrating cultural elements into tourism. Educational programs can raise local awareness of cultural preservation through workshops, training, and public campaigns. Safeguarding historical landmarks, supporting handcrafted products, and incorporating cultural events into tourism fosters a sustainable industry that delivers satisfactory experiences. Tourist safety and security should be enhanced by improving police efficiency and providing more accurate emergency response information. Implementing sustainable tourism practices, green policies, and eco-friendly products and services can mitigate negative environmental impacts. Community education programs on environmental stewardship and sustainable tourism raise awareness and encourage environmentally conscious behavior. Government policies should incentivize infrastructure improvements, enforce environmental standards, boost safety and security, and support cultural conservation. Collaboration among government agencies, tourism stakeholders, local communities, and tourists is crucial for designing measures to boost satisfaction. Implementing these recommendations will improve Vietnam's tourist satisfaction; enhance loyalty, positive word-of-mouth, and sustainable growth; and ensure long-term sustainability and global competitiveness.

Limitations and avenues for future research

Limitations: The small sample size limits the generalizability of the findings to the entire Vietnamese tourist population. Focusing on specific factors may overlook other factors that influence tourist satisfaction. Self-reported data from tourists may have introduced bias. A short research period could reduce data richness and quantity.

Future research: Longitudinal studies are needed to observe changes in tourist satisfaction over time and the effects of government policies on tourism. Comparative research should evaluate tourist satisfaction in Vietnam compared to other countries to identify the best practices and areas for improvement. Qualitative methods such as interviews, focus groups, and social media analysis can provide deeper insights into tourists' perceptions and experiences. Research should examine Vietnam's role as a tourist destination, the effectiveness of sustainability measures in tourism, and government efforts to enhance tourist satisfaction and promote sustainable practices

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