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Always Return, Always Recommend: The Impact of Sustainability on Tourist Loyalty in Ecotourism

Zahir Osman*
Open University Malaysia
Corresponding Author Email: zahir_osman@oum.edu.my

Fairul Ifnee Othman
Open University Malaysia
Email: fairul_ifnee@oum.edu.my

Norjaya Mohd Yasin
Open University Malaysia
Email: norjaya@oum.edu.my

Zorah Abu Kassim
Open University Malaysia
Email: zorah_abukassim@oum.edu.my

Hazalina Hashim
Open University Malaysia
Email: Hazalina@oum.edu.my

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Abstract

This study emphasizes the crucial role of tourist loyalty in the sustainable development of the ecotourism sector, where loyal visitors foster year-round support, positive word-of-mouth, and environmentally responsible behaviors. The primary aim of the research was to investigate the influence of economic, environmental, and social sustainability on tourist loyalty, with tourist satisfaction acting as a mediator. Data was collected through structured questionnaires distributed via purposive sampling, targeting ecotourists, resulting in 289 valid responses out of 381 questionnaires. The data was analyzed using SmartPLS 4, employing structural equation modeling to evaluate the hypotheses. The analysis revealed that social and environmental sustainability significantly positively impact tourist loyalty directly, while economic sustainability influences loyalty indirectly through satisfaction. Specifically, hypotheses regarding direct effects of economic and environmental sustainability on loyalty were supported, whereas the direct effect of environmental sustainability on satisfaction was

not. The mediating role of satisfaction was confirmed for economic sustainability and social sustainability, but not for environmental sustainability. Future research should explore longitudinal designs and cross-cultural comparisons, investigate additional mediators or moderators, and consider the role of digital media in shaping perceptions. Practically, the findings suggest that ecotourism operators should focus on transparent, community-involving sustainability practices and communicate tangible conservation outcomes to enhance tourist perceptions and loyalty. Overall, the study contributes to the theoretical understanding of sustainability's multifaceted influence on loyalty, offering valuable insights for practitioners and policymakers committed to sustainable tourism growth that balances ecological preservation and visitor engagement.
Keywords: Economic Sustainability, Environmental Sustainability, Social Sustainability, Satisfaction, Loyalty

Introduction

Tourist loyalty in the ecotourism sector is critically important for fostering sustainable development and ensuring the long-term success of ecotourism destinations. Loyal tourists not only contribute to consistent revenue streams but also serve as ambassadors for responsible tourism practices, spreading positive perceptions and encouraging ecologically conscious behaviours. Moreover, high levels of loyalty reduce marketing costs and increase the resilience of destinations against competitive pressures and external shocks, such as environmental degradation or political instability. Globally, the current trends in tourist loyalty within ecotourism highlight an increasing recognition of the importance of sustainability. Tourists are increasingly motivated by environmental concerns, social responsibility, and authentic experiences, which influence their repeat visitation and word-of-mouth recommendations (Osman et al., 2023). Several studies have emphasised that destination image, satisfaction, and motivation are key drivers of eco-tourism loyalty, highlighting the significance of perceptions and experiences in shaping loyalty (Rahayu et al., 2023; Kusumah, 2024). However, despite the growing interest, maintaining tourist loyalty remains challenging due to issues like destination overcrowding, environmental degradation, and inconsistent quality of ecotourism services (Osman et al., 2023). For example, the impact of perceived service quality, environmental values, and social responsibility can (Van Phung et al., 2024) influence satisfaction and loyalty, but how these factors interact requires further investigation (Seperi & Sakti, 2024; Talukder et al., 2024). Additionally, the rise of social media and online reviews has amplified the impact of tourists' satisfaction, making loyalty more volatile and heavily influenced by instant feedback (Hoang et al., 2024). Research gaps persist regarding the specific factors that drive loyalty in ecotourism, particularly in diverse cultural and geographic contexts (Sarangi & Ghosh, 2025). There is limited understanding of how different dimensions of sustainability, such as economic, environmental, and social factors, interact to influence loyalty (Azinuddin et al., 2023). Furthermore, the role of tourist satisfaction as a mediator in these relationships warrants further exploration, as understanding this linkage could help develop targeted strategies to enhance loyalty more effectively (Jaitip et al., 2024). A significant problem in fostering tourist loyalty lies in balancing tourism growth with environmental conservation, often leading to a decline in sustainability standards (Othman & Osman, 2024). Without sustained efforts, ecological degradation and over-tourism diminish the attractiveness of ecotourism destinations, eroding tourist trust and loyalty (Sahabuddin et al., 2024; Hoang et al., 2023). This study is highly relevant for policymakers, ecotourism sectors, operators, and tourists. Understanding loyalty drivers is

essential for policymakers to design policies that promote sustainable practices, protect natural resources, and foster community involvement. Ecotourism operators can leverage insights into service quality and environmental values to enhance visitor satisfaction and long-term loyalty, supported by the understanding of perceived benefits and image (Asgharzadeh et al., 2023; Amit et al., 2025). For tourists, increased loyalty signifies better satisfaction that aligns with their ecological values, thereby encouraging sustainable behaviours and repeat visits. Strengthening tourist loyalty through responsible practices is vital for the continued growth, environmental integrity, and sustainability of the ecotourism sector. This study aims to assess the direct and indirect relationships of economic sustainability, environmental sustainability, and social sustainability on tourist loyalty, with tourist satisfaction as a mediator in the Malaysian ecotourism sector.

Literature Review

Underpinning Theory

The Theory of Stakeholder emphasises the importance of active involvement and positive relationships between organisations and their stakeholders (Freeman, 1984). In the context of ecotourism, stakeholders include tourists, local communities, and environmental entities, whose perceptions of economic, environmental, and social sustainability influence their attitudes and behaviours (Mitchell, Agle, & Wood, 1997). When ecotourism operators effectively engage these stakeholders through sustainable practices, tourists perceive the destination as responsible and trustworthy, fostering higher satisfaction levels. Satisfaction, in turn, enhances tourists' loyalty to the destination, as they feel their expectations regarding sustainability are met or exceeded (Oliver, 1980). Complementing this, Social Exchange Theory posits that relationships are built on reciprocal exchanges and perceived mutual benefits (Blau, 1964). Tourists evaluate their experiences based on the benefits received, such as ethical treatment, environmental preservation, and community support, which are indicators of sustainability efforts. When tourists perceive that their values align with the sustainability practices of a destination, they develop a sense of trust and obligation, increasing their intention to revisit and recommend the destination (Cropanzano & Mitchell, 2005). Together, these theories explain how economic, environmental, and social sustainability initiatives influence tourist loyalty indirectly through satisfaction. Effective stakeholder engagement communicates a destination's commitment to sustainability, fostering positive perceptions. Simultaneously, reciprocal benefits reinforce satisfaction, which acts as a mediator leading to increased loyalty (Andaleeb, 1992). This integrated theoretical framework underscores the importance of stakeholder relations and perceived exchanges in shaping tourism outcomes.

Relationship between Economic Sustainability, Tourist Satisfaction & Tourist Loyalty

The relationship between economic sustainability and tourist loyalty is significantly influenced by tourist satisfaction, which acts as a crucial mediator in this dynamic interaction. When destinations prioritize economic sustainability, they effectively ensure the long-term affordability and accessibility of tourism services, which enhances tourists' perceptions of value and fairness. These practices include fair pricing, supporting local economies, and creating economic opportunities that benefit both tourists and host communities. When tourists recognize such efforts, their overall satisfaction with their experience tends to increase, as they feel their financial contributions support sustainable development and local livelihoods (Kusumah, 2024). This heightened satisfaction fosters a sense of trust and positive

emotional attachment to the destination, which encourages repeat visits and positive word-of-mouth recommendations, thereby strengthening tourist loyalty (Andjarwati & Rofiq, 2025). Moreover, economic sustainability boosts confidence in the destination's ability to maintain quality standards over time, reassuring tourists that their experiences will remain consistent and rewarding (Zulvianti et al., 2023). Consequently, satisfied tourists are more likely to develop a strong sense of loyalty, viewing the destination as a responsible and reliable choice for future travel (Rasoolimanesh et al., 2025). In this way, tourist satisfaction serves as an essential link in translating economic sustainability efforts into ongoing loyalty, reinforcing the importance of integrating economic considerations into sustainable tourism strategies to foster long-lasting relationships with visitors (Rahman et al., 2023; Qiu et al., 2024). *Therefore, the following hypotheses were proposed for this study:*

H1: There is a relationship between economic sustainability and tourist loyalty in the ecotourism sector.
H2: There is a relationship between economic sustainability and tourist satisfaction towards tourist loyalty in the ecotourism sector.
H3: There is a mediating effect of tourist satisfaction on the relationship between economic sustainability and tourist loyalty in the ecotourism sector.

Relationship between Environmental Sustainability, Tourist Satisfaction & Tourist Loyalty
The relationship between environmental sustainability and tourist loyalty is deeply rooted in the level of tourist satisfaction, with satisfaction serving as an essential mediator. When a destination demonstrates a genuine commitment to environmental sustainability, it positively influences tourists' perceptions by showcasing its dedication to preserving natural resources, reducing pollution, and maintaining ecological balance. Tourists who observe and experience these environmental efforts tend to develop a sense of trust and confidence in the destination's long-term viability, feeling that their visit contributes to environmental conservation (Wei & Zhang, 2023). This perception enhances their overall satisfaction, as their expectations of responsible tourism are met or exceeded. Satisfied tourists are more inclined to form emotional bonds with the destination, resulting in increased loyalty and a higher likelihood of revisiting or recommending it to others (Pramanik & Rahman, 2025). Furthermore, environmental sustainability practices bolster the destination's image, reinforcing tourists' feelings of moral and ethical satisfaction for supporting eco-friendly initiatives, which can also influence their environmentally responsible behaviors (Rahman et al., 2023). Consequently, satisfied tourists associate their positive experiences with the destination's environmental values, which amplifies their commitment to loyalty. This process underscores the importance of environmental sustainability as a key factor in the development of long-term tourist loyalty, where tourist satisfaction bridges the gap between eco-friendly practices and continued patronage, highlighting the sustainable growth potential of environmentally responsible tourism destinations (Munir et al., 2025; Elshaer et al., 2024). *Thus, the following hypotheses were proposed for this study:*

H4: There is a relationship between environmental sustainability and tourist loyalty in the ecotourism sector.
H5: There is a relationship between environmental sustainability and tourist Satisfaction towards tourist loyalty in the ecotourism sector
H6: There is a mediating effect of tourist satisfaction on the relationship between

environmental sustainability and tourist loyalty in the ecotourism sector.

Relationship between Social Sustainability, Tourist Satisfaction & Tourist Loyalty

The relationship between social sustainability and tourist loyalty is fundamentally influenced by tourist satisfaction, which acts as a vital mediator in fostering long-term relationships between tourists and destinations. When a destination actively incorporates social sustainability practices such as supporting local communities, promoting cultural heritage, and ensuring equitable benefits for tourists are likely to perceive the destination as responsible and values-aligned. This perception enhances their overall satisfaction because they feel their visit supports positive social outcomes and respects local traditions and cultures (Huruta et al., 2024). As tourists experience authentic, respectful, and inclusive interactions, their emotional connection to the destination deepens, leading to increased loyalty. Satisfied tourists tend to develop trust and a sense of personal fulfillment from their visits, which encourages them to revisit the destination and recommend it to others (Alsiehemy, 2023). Moreover, social sustainability efforts enhance tourists' perceptions of destination credibility, fostering pride and moral satisfaction, which further reinforce their commitment (Karatepe et al., 2024). Destination social responsibility, along with the self-congruity of tourists, plays a crucial role in strengthening these bonds (Tran et al., 2023). When tourists recognize and appreciate these efforts, their loyalty increases, supporting the ongoing growth and resilience of the destination in a socially responsible manner (Jasrotia et al., 2024). *Thus, the following hypotheses were proposed for this study:*

H7: There is a relationship between social sustainability and tourist loyalty in the ecotourism sector.

H8: There is a relationship between social sustainability and tourist satisfaction towards tourist loyalty in the ecotourism sector

H9: There is a relationship between tourist satisfaction and tourist loyalty in the ecotourism sector.

H10: There is a mediating effect of tourist satisfaction on the relationship between social sustainability and tourist loyalty in the ecotourism sector.

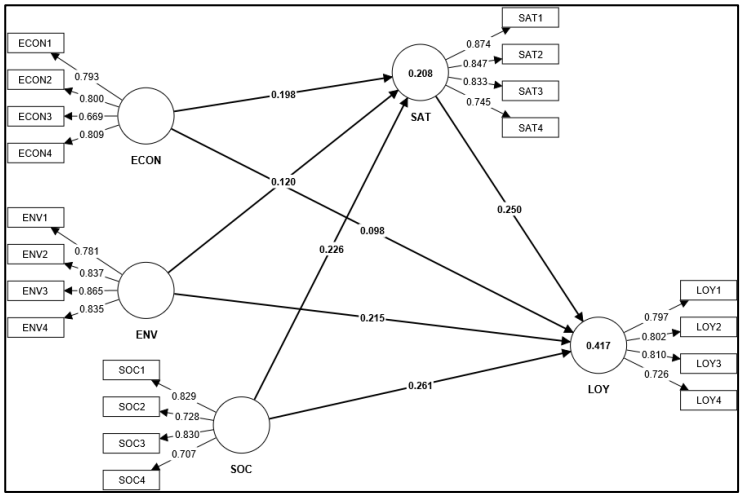

Figure 1: Research Model

Notes: ECON=Economical Sustainability ENV=Environmental Sustainability SOC=Social Sustainability SAT=Tourist Satisfaction LOY=Tourist Loyalty

Methodology

This research aimed to explore rural tourists' perceptions regarding the direct relationships among economic sustainability, environmental sustainability, social sustainability, tourist satisfaction, and tourist loyalty within the context of Malaysian ecotourism. Data were gathered through survey questionnaires designed to reflect these constructs, with measurement items selected based on an extensive review of existing literature to ensure their reliability. Due to the absence of a comprehensive population list, participants were purposely selected through purposive sampling, and the questionnaires were disseminated via email. The analysis involved 20 observed variables: economic sustainability (measured by four items adapted from Oh et al., 2007), environmental sustainability (assessed with four items derived from Quoquab et al., 2019), social sustainability (evaluated through four items from Larimian & Sadeghi, 2021), tourist satisfaction (measured by a four-item scale from Carlos Castro et al., 2017), and tourist loyalty (assessed with four items adapted from Cronning et al., 2000). All variables used a 5-point Likert scale, ranging from strongly disagree to strongly agree. Out of 381 questionnaires distributed, 308 responses were received, yielding an 81% response rate, which is considered suitable for structural equation modeling (SEM). After removing incomplete responses, 289 surveys were deemed valid for further analysis. Data processing and hypothesis testing were performed using SmartPLS 4, a software effective for handling complex multivariate data, guided by the protocols of Ringle et al. (2022). This facilitated an in-depth evaluation of both the measurement and structural models, enabling detailed hypothesis testing.

Data Analysis

Common Method Bias

The collinearity assessment in Table 1 shows that all VIF values range from 1.219 to 1.901, well below the recommended threshold of 3.3, indicating low multicollinearity and minimal risk of common method bias. According to Kock and Lynn (2012) and Kock (2015), these values suggest that common method variance is unlikely to influence the results significantly. The absence of high VIF values confirms that the measurement model is robust, and the relationships among constructs, such as tourist loyalty, sustainability, and satisfaction, are unlikely to be distorted by measurement artifacts, supporting the validity of the study's findings.

Table 1
Full Collinearity (VIF)

	LOY	ECON	ENV	SOC	SAT
LOY		1.571	1.548	1.652	1.542
ECON	1.802		1.408	1.896	1.526
ENV	1.842	1.461		1.967	1,387
SOC	1.901	1.426	1.412		1.413
SAT	1.219	1.328	1.316	1.338	

Measurement Model

The analysis of construct reliability and validity based on the data in Table 2 reveals that all constructs demonstrate good internal consistency and convergent validity, following the guidelines of Hair et al. (2019). Cronbach's alpha (CA) values range from 0.779 (Social Sustainability) to 0.855 (Tourist Satisfaction), all exceeding the conventional threshold of 0.70,

indicating acceptable reliability. Composite reliability (CR) values are also robust, ranging from 0.774 (Economic) to 0.866 (Environmental), well above the recommended cutoff of 0.70, confirming reliable measurement models. The Average Variance Extracted (AVE) for all constructs exceeds the 0.50 benchmark, specifically, from 0.593 (Economic) to 0.692 (Environmental), demonstrating adequate convergent validity. Additionally, the factor loadings of items across constructs are all above 0.669, with most exceeding 0.80, supporting the items' indicator reliability. Taken together, these results validate that the constructs in the model possess strong internal consistency and convergent validity, ensuring that the measures accurately and reliably capture the underlying theoretical constructs, as supported by the standards of Hair et al. (2019). All HTMT ratios in Table 3 are below the recommended threshold of 0.85, indicating adequate discriminant validity among constructs. Specifically, ratios like 0.736 (ECON–ENV) and 0.55 (ECON–LOY) confirm that the constructs are sufficiently distinct, supporting the discriminant validity as per Henseler et al. (2015).

Table 2
Construct Reliability and Validity & Items Loadings

Constructs	Items	Loadings	CA	CR	AVE
Economic	ECON1	0.793	0.768	0.774	0.593
Sustainability	ECON2	0.800			
	ECON3	0.669			
	ECON4	0.809			
Environmental	ENV1	0.781	0.85	0.866	0.689
Sustainability	ENV2	0.837			
	ENV3	0.865			
	ENV4	0.835			
Tourist	LOY1	0.797	0.793	0.803	0.616
Loyalty	LOY2	0.802			
	LOY3	0.810			
	LOY4	0.726			
Tourist	SAT1	0.874	0.844	0.855	0.682
Satisfaction	SAT2	0.847			
	SAT3	0.833			
	SAT4	0.745			
Social	SOC1	0.829	0.779	0.781	0.601
Sustainability	SOC2	0.728			
	SOC3	0.830			
	SOC4	0.707			

Notes: CA=Cronbach Alpha CR=Composite Reliability AVE=Average variance Extracted

Table 3
Hetrotrait-Monotrait (HTMT) Ratios

	ECON	ENV	LOY	SAT
ENV	0.736			
LOY	0.55	0.627		
SAT	0.458	0.435	0.569	
SOC	0.587	0.761	0.666	0.466

Structural Model

This research employed the methodology recommended by Hair et al. (2017) to assess the structural model, involving simultaneous examination of the pathway coefficients (β) and the R-squared (R^2) values. The Partial Least Squares (PLS) technique was used, with 5,000 bootstrap samples to evaluate the significance of the path coefficients. The results of hypothesis testing are detailed in Table 4, including confidence intervals, beta values, t-statistics, and p-values. This thorough analysis offers valuable insights into the strength and significance of the relationships among the variables in the model, highlighting the robustness and validity of the findings. *H1 (ECON -> LOY)*: This hypothesis suggests that economic sustainability directly influences tourist loyalty. The result shows no significant relationship (p=0.139), so we reject this hypothesis, implying that economic factors alone do not directly drive loyalty without considering other mediating factors like satisfaction. *H2 (ECON -> SAT)*: This hypothesis posits that economic sustainability positively impacts tourist satisfaction. The findings support this, as the relationship is significant (p=0.011), indicating that tourists perceiving economic sustainability are more satisfied with their experience. *H3 (ECON -> SAT -> LOY):* This hypothesizes that tourist satisfaction mediates the relationship between economic sustainability and loyalty. The results support mediation (p=0.026), showing that economic sustainability influences loyalty indirectly through increasing satisfaction. *H4 (ENV -> LOY)*: This states that environmental sustainability directly influences tourist loyalty. The significant positive result (p=0.002) confirms this, indicating that eco-friendly practices can directly enhance tourist loyalty. *H5 (ENV -> SAT)*: This suggests that environmental sustainability impacts tourist satisfaction. Since the p-value is 0.157, the effect is not significant, so environmental factors do not directly influence satisfaction in this context. *H6 (ENV -> SAT -> LOY)*: This hypothesizes that satisfaction mediates the effect of environmental sustainability on loyalty. The non-significant result (p=0.181) leads to rejecting this, implying no indirect effect. *H7 (SOC -> LOY):* This posits that social sustainability directly influences loyalty. The significant result (p<0.001) supports this, indicating that social factors such as community support can directly build loyalty. *H8 (SOC -> SAT):* This suggests that social sustainability affects satisfaction. The significant positive relationship (p=0.001) confirms that social factors contribute to higher tourist satisfaction. *H9 (SAT -> LOY):* This hypothesis states that tourist satisfaction directly influences loyalty. The significant result (p<0.001) supports this, emphasizing that satisfied tourists are more likely to remain loyal. *H10 (SOC -> SAT -> LOY):* This posits that satisfaction mediates the relationship between social sustainability and loyalty. The significant p-value (0.014) supports this mediation effect, indicating that social sustainability influences loyalty through increasing satisfaction.

Table 4
Hypothesis Testing Results

Hypotheses	Beta	T statistics	P values	2.50%	97.50%	Decision
H1: ECON -> LOY	0.098	1.481	0.139	-0.030	0.228	*Rejected*
H2: ECON -> SAT	0.198	2.544	0.011	0.030	0.338	*Accepted*
H3: ECON -> SAT -> LOY	0.050	2.230	0.026	0.012	0.101	*Accepted*
H4: ENV -> LOY	0.215	3.086	0.002	0.075	0.349	*Accepted*
H5: ENV -> SAT	0.120	1.416	0.157	-0.051	0.282	*Rejected*
H6: ENV -> SAT -> LOY	0.030	1.338	0.181	-0.009	0.081	*Rejected*
H7: SOC -> LOY	0.261	4.041	0.000	0.129	0.383	*Accepted*
H8: SOC -> SAT	0.226	3.360	0.001	0.094	0.353	*Accepted*
H9: SAT -> LOY	0.250	4.404	0.000	0.142	0.366	*Accepted*
H10: SOC -> SAT -> LOY	0.057	2.446	0.014	0.020	0.112	*Accepted*

Note: Significant at p<0.05

Effect Sizes (f^2)

According to Cohen's (1992) guidelines, effect sizes (f^2) provide insight into the impact of predictors on dependent variables. In the table, economic sustainability has a small effect on tourist loyalty (f^2=0.010) and a small to moderate effect on tourist satisfaction (f^2=0.031). Environmental sustainability shows a small effect on tourist loyalty (f^2=0.038) and a negligible effect on satisfaction (f^2=0.009). Tourist satisfaction displays a moderate effect on loyalty (f^2=0.085). Social sustainability has a moderate effect on both loyalty (f^2=0.067) and satisfaction (f^2=0.038). These values indicate varying degrees of influence on the respective dependent variables.

Table 5
Effect Sizes (f^2)

	LOY	SAT
ECON	0.010	0.031
ENV	0.038	0.009
SAT	0.085	
SOC	0.067	0.038

PLSpredicts & Cross-Validated Predictive Ability Test (CVPAT)

According to Shmueli et al. (2016, 2019), the predictive performance of the PLS-SEM model can be evaluated using PLSpredict. In this analysis, the RMSE values from the PLS-SEM predictions were consistently lower than those from the Linear Model (LM) benchmarks, indicating superior predictive accuracy. Specifically, all PLS RMSEs are smaller than LM RMSEs, with differences ranging between -0.003 and -0.032. This suggests that the PLS-SEM model has enhanced predictive power over the traditional linear approach, demonstrating its effectiveness in forecasting outcomes with reduced error margins, thereby validating its robustness and reliability for model predictions. The CVPAT results, as recommended by Hair et al. (2022) and Liengaard et al. (2021), show that the average loss differences for loyalty, satisfaction, and overall are all negative, indicating the model's predictions outperform the baseline. Specifically, the loss difference values are -0.111 for loyalty and -0.079 for satisfaction, both with high t-values (5.009 and 2.801) and p-values of 0.000 and 0.005, respectively, confirming statistical significance. The overall score of -0.095 with a t-value of

4.632 further demonstrates the model's strong predictive ability, validating its robustness in forecasting the constructs accurately.

Table 6
PLSpredicts

	Q^2predict	PLS-RMSE	LM-RMSE	PLS-LM
LOY1	0.287	0.614	0.631	-0.017
LOY2	0.194	0.620	0.635	-0.015
LOY3	0.227	0.664	0.667	-0.003
LOY4	0.116	0.729	0.739	-0.010
SAT1	0.163	0.767	0.789	-0.022
SAT2	0.126	0.743	0.775	-0.032
SAT3	0.068	0.780	0.789	-0.009
SAT4	0.110	0.782	0.797	-0.015

Table 7
Cross-Validated Predictive Ability Test (CVPAT)

	Average loss difference	t-value	p-value
LOY	-0.111	5.009	0.000
SAT	-0.079	2.801	0.005
Overall	-0.095	4.632	0.000

Importance-Performance Map Analysis (IPMA)

The IPMA (Ringle & Sarstedt, 2016; Hair et al., 2018) results show that social sustainability (SOC) has the highest importance (0.318) but the lowest performance (66.833), indicating it is crucial for influencing tourist loyalty but currently underperforming. Improving social sustainability involves strengthening community engagement, promoting local culture, and ensuring equitable benefits for residents. Focusing on these areas can enhance tourists' social experiences, increase satisfaction, and ultimately boost loyalty. Since social sustainability's importance outweighs its performance, targeted efforts to address social issues will likely have the most significant impact on increasing overall tourist loyalty and long-term tourism success.

Table 8
Importance-Performance Map Analysis (IPMA)

	Importance	Performance
ECON	0.147	66.506
ENV	0.245	67.114
SAT	0.250	67.362
SOC	0.318	66.833

Discussion & Conclusion

Discussion

The findings highlight several practical strategies that the ecotourism sector should adopt to strengthen the interactions between economic, environmental, and social sustainability, thereby boosting tourist loyalty through increased satisfaction. Given that the beta for environmental sustainability's direct effect on loyalty (β=0.215) and social sustainability's

direct impact on loyalty (β=0.261) are statistically significant, ecotourism operators should prioritize integrating eco-friendly practices that visibly contribute to conservation efforts and community development. For example, investing in renewable energy, waste reduction, and supporting local communities through responsible employment and cultural projects can reinforce tourists' perceptions of sustainability initiatives, elevating their satisfaction and subsequent loyalty (Yadav et al., 2025). Additionally, since the mediating role of satisfaction between economic sustainability and loyalty (β=0.050) is significant, eco-destinations should focus on providing economic benefits that tourists perceive as fair and sustainable, such as supporting fair trade, local entrepreneurship, and affordable eco-friendly lodging options, which enhance overall experiences and promote loyalty (Li & Kim, 2025). A possible reason why some hypotheses such as environmental sustainability directly affecting satisfaction (β=0.120) were not supported could be due to tourists' limited awareness or perceived relevance of environmental efforts unless these actions lead to tangible, immediate benefits like cleaner environments or improved amenities, which positively influence satisfaction (Ding et al., 2024). To mitigate this, ecotourism operators should increase transparency and communication regarding environmental initiatives, showing tourists clear evidence of conservation outcomes and engaging them in participatory activities that foster a deeper emotional connection (Zimmer & Foti, 2024). Furthermore, incorporating local communities in the planning and implementation of sustainability initiatives can foster social inclusiveness, which positively influences satisfaction and loyalty, aligning with the importance placed on social sustainability's role in the model. By adopting these integrated, transparent, and participatory approaches, ecotourism can effectively enhance sustainability dimensions and drive long-term tourist loyalty.

Theoretical Implications

The above study significantly advances the theoretical understanding of sustainability's role in shaping tourist loyalty through a comprehensive integration of economic, environmental, and social dimensions, contributing to the existing literature by emphasizing the mediating role of tourist satisfaction. It extends the traditional view that sustainability directly influences loyalty by highlighting the importance of perceived satisfaction as a crucial mechanism through which sustainability efforts translate into loyalty outcomes. This conceptual refinement aligns with frameworks such as those proposed by Hofstede et al. (2024), emphasizing the importance of importance-performance analysis and expectancy-value theories in understanding tourists' decision-making processes. Additionally, the Theory of Stakeholder Engagement (Freeman, 1984) and Social Exchange Theory (Blau, 1964) underpin the understanding that involving local communities and fostering reciprocal, mutually beneficial relationships enhance perceived value and emotional engagement, which are essential for long-term loyalty. The findings underscore that social and environmental sustainability are not only direct drivers of loyalty but also indirectly influence loyalty through satisfaction, suggesting dual pathways that build a more nuanced model of sustainable tourism behavior. Furthermore, the differentiation between direct and mediated effects illuminates the complex, layered nature of sustainability's impact, prompting a reevaluation of linear models. This study introduces the insight that perception gaps, where environmental and social efforts may not always directly translate to satisfaction unless tourists see tangible, immediate benefits, must be accounted for to deepen our understanding of sustainable tourism dynamics. Consequently, these insights could refine existing theories by emphasizing the pivotal role of perceived value, emotional engagement, and stakeholder involvement in

the sustainability-loyalty linkage, further guiding future research into integrative, multi-dimensional models of sustainable tourism behavior (Ding et al., 2024; Li & Kim, 2025).

Practical Implications

The findings of this study have significant practical implications for ecotourism operators and policymakers seeking to enhance tourist loyalty through sustainability initiatives. Firstly, given the strong influence of social and environmental sustainability directly on loyalty, ecotourism practitioners should prioritize fostering authentic community engagement and showcasing visible conservation efforts. Strategies such as involving local communities in decision-making, supporting cultural preservation, and implementing eco-friendly practices can elevate tourists' perceptions of sustainability, consequently increasing satisfaction and loyalty. Additionally, since economic sustainability influences loyalty indirectly via tourist satisfaction, operators should focus on providing fair pricing, supporting local businesses, and ensuring inclusive economic benefits to create positive visitor experiences. Transparent communication about sustainability efforts, along with tangible benefits, can help bridge perception gaps, especially in environmental initiatives that may not immediately impact satisfaction. Policymakers can support these efforts by creating regulations and incentives that promote sustainable practices among tourism providers. Furthermore, training programs emphasizing stakeholder engagement and value creation can improve the quality of interactions between tourists, local communities, and service providers, fostering long-term loyalty. Ultimately, integrating sustainability across social, environmental, and economic domains and effectively communicating these efforts can cultivate a loyal customer base, ensure sustainable growth, and protect natural and social assets for future generations.

Suggestions for Future Studies

Future research should explore longitudinal designs to examine how sustainability initiatives influence tourist loyalty over time, providing deeper insights into causal relationships. Comparative studies across different geographic regions or cultural contexts could uncover variations in the importance of economic, social, and environmental sustainability. Additionally, investigating other potential mediators, such as emotional attachment, trust, or perceived value, could enrich understanding of loyalty formation. Future studies could also explore the role of digital media and online reviews in shaping perceptions of sustainability and loyalty. Examining the impact of specific sustainability practices, like eco-certifications or community involvement, on tourist satisfaction and loyalty can provide more targeted strategies. Furthermore, research could investigate how demographic factors such as age, nationality, or tourism motivation influence the sustainability-loyalty link. Lastly, integrating behavioral aspects, such as actual eco-friendly behaviors post-visit, could advance theories on responsible tourism and environmental stewardship. These avenues will contribute to a more holistic understanding of sustainable tourism's long-term effects on tourist loyalty and satisfaction.

Conclusion

This study underscores the critical role of sustainability, economic, environmental, and social, in fostering tourist loyalty through enhanced satisfaction. The findings reveal that social and environmental sustainability directly influence loyalty, while economic sustainability affects it indirectly via satisfaction, highlighting the importance of holistic sustainability strategies. The mediating role of satisfaction emphasizes that tourists' perceptions and experiences are

vital in translating sustainability efforts into long-term loyalty. Practically, ecotourism operators and policymakers should prioritize transparent, authentic sustainability initiatives that engage local communities, promote environmental conservation, and support local economies. Future-oriented strategies should focus on increasing visibility of sustainability outcomes and fostering emotional bonds to strengthen loyalty. Overall, this research enriches the theoretical understanding of sustainable tourism, providing a solid foundation for future studies and practical practices aimed at sustainable growth and responsible tourism development. By integrating sustainability across all dimensions and emphasizing stakeholder involvement, the ecotourism sector can achieve a balance between ecological preservation and business success.

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