SUSTAINABLE BUSINESS PRACTICES AND CONSUMER PREFERENCE: A STUDY OF ECO-FRIENDLY TOURISM IN BALI

PRAKTEK BISNIS BERKELANJUTAN DAN PREFERENSI KONSUMEN: STUDI TENTANG WISATA RAMAH LINGKUNGAN DI BALI

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ABSTRACT

This study examines the influence of environmental sustainability practices, social sustainability practices, and sustainability certification and transparency on customer satisfaction and loyalty in Bali's eco-friendly tourism sector, while controlling for demographic and behavioral factors. A cross-sectional survey was conducted with 128 domestic and international tourists who had experienced eco-friendly accommodations in Bali. Multiple linear regression analysis was employed to test the relationships between sustainability practices and customer outcomes, controlling for gender, age, income level, and length of stay. Reliability and validity were established through Cronbach's alpha coefficients (α = 0.79-0.88) and exploratory factor analysis (KMO = 0.81). The integrated model explained 59% of variance in customer satisfaction and loyalty (Adjusted R^2 = 0.59, $F(6,121)$ = 21.47, $p < .001$). Environmental sustainability practices emerged as the strongest predictor (β = 0.35, $p < .001$), followed by social sustainability practices (β = 0.29, $p < .001$) and sustainability certification and transparency (β = 0.21, $p = .004$). Income level (β = 0.17, $p = .020$) and length of stay (β = 0.14, $p = .047$) significantly influenced outcomes, while demographic variables (gender, age) showed no significant effects. Tourism businesses in Bali should prioritize visible environmental actions, integrate community-based initiatives, and pursue credible sustainability certifications to enhance competitive advantage through customer satisfaction and loyalty. Policymakers should develop comprehensive sustainability standards that encompass environmental, social, and transparency dimensions. This study advances sustainable tourism scholarship by simultaneously examining multiple sustainability dimensions with rigorous demographic and behavioral controls in a high-pressure tourism destination context.
Keywords: *Sustainable_Tourism; Environmental_Sustainability; Customer_Satisfaction; Eco-Friendly_Tourism; Bali_Tourism.*

ABSTRAK

Penelitian ini mengkaji pengaruh praktik keberlanjutan lingkungan, praktik keberlanjutan sosial, sertifikasi keberlanjutan, dan transparansi terhadap kepuasan dan loyalitas pelanggan di sektor pariwisata ramah lingkungan Bali, dengan mengontrol faktor demografis dan perilaku. Survei cross-sectional dilakukan terhadap 128 wisatawan domestik dan internasional yang pernah menginap di akomodasi ramah lingkungan di Bali. Analisis regresi linier berganda digunakan untuk menguji hubungan antara praktik keberlanjutan dan hasil pelanggan, dengan mengontrol faktor gender, usia, tingkat pendapatan, dan lama tinggal. Keandalan dan validitas ditetapkan melalui koefisien Cronbach's alpha (α = 0.79-0.88) dan analisis faktor eksploratori (KMO = 0.81). Model terintegrasi menjelaskan 59% varians dalam kepuasan dan loyalitas pelanggan (Adjusted R^2 = 0.59, $F(6,121)$ = 21.47, $p < .001$). Praktik keberlanjutan lingkungan muncul sebagai prediktor terkuat (β = 0.35, $p < .001$), diikuti oleh praktik keberlanjutan sosial (β = 0.29, $p < .001$) dan sertifikasi keberlanjutan serta transparansi (β = 0.21, $p = .004$). Tingkat pendapatan (β = 0,17, $p = 0,020$) dan lama tinggal (β = 0,14, $p = 0,047$) Hasil penelitian menunjukkan bahwa faktor-faktor tertentu memiliki pengaruh yang signifikan terhadap hasil, sementara variabel demografis (jenis kelamin, usia) tidak menunjukkan efek yang signifikan. Bisnis pariwisata di Bali sebaiknya memprioritaskan tindakan lingkungan yang terlihat, mengintegrasikan inisiatif berbasis komunitas, dan mengejar sertifikasi keberlanjutan yang kredibel untuk meningkatkan keunggulan kompetitif melalui kepuasan dan loyalitas

pelanggan. Pembuat kebijakan sebaiknya mengembangkan standar keberlanjutan yang komprehensif yang mencakup dimensi lingkungan, sosial, dan transparansi. Penelitian ini memperkaya kajian pariwisata berkelanjutan dengan menganalisis secara bersamaan berbagai dimensi keberlanjutan dengan kontrol demografis dan perilaku yang ketat dalam konteks destinasi pariwisata yang padat.
Kata Kunci: Pariwisata_Berkelanjutan; Keberlanjutan_Lingkungan; Kepuasan_Pelanggan; Pariwisata_Ramah_Lingkungan; Pariwisata_Bali.

INTRODUCTION

Bali, Indonesia, exemplifies this global challenge with particular intensity. As one of the world's most popular tourism destinations, Bali has experienced rapid growth in international visitor arrivals, which has severely strained the island's infrastructure and natural resources. The problem is multifaceted: water scarcity has become acute as large hotels and resorts consume disproportionate shares of freshwater resources, leaving local communities and farmers facing chronic shortages, a situation exacerbated by inadequate water management systems. Simultaneously, rapid overdevelopment through uncontrolled construction of hotels, villas, and commercial tourism zones has reduced green spaces and natural habitats, increasing environmental vulnerability and ecosystem degradation.

Tourism has emerged as one of the fastest-growing economic sectors globally, contributing significantly to employment and income generation across nations. Ideally, tourism development should achieve a harmonious balance between economic growth, environmental protection, and social well-being, a vision articulated in the United Nations Sustainable Development Goals (SDGs), particularly SDG 13 (Climate Action) and SDG 12 (Responsible Consumption and Production). In this ideal scenario, tourism businesses would implement comprehensive environmental sustainability practices (waste reduction, energy efficiency, water conservation), social sustainability practices (community engagement, fair labor, cultural preservation), and maintain sustainability certification and transparency to build trust and accountability with consumers. Such practices would not only protect natural ecosystems but also enhance customer satisfaction and loyalty, creating a virtuous cycle where environmentally and socially responsible tourism thrives economically.

However, the current reality diverges significantly from this ideal. The number of international travelers continues to rise exponentially, and without stronger sustainability policies and enforcement mechanisms, tourism growth is outpacing environmental protection efforts, leading to long-term ecological damage (Bacloch et al., 2022). The growing travel demand, combined with weak regulatory enforcement, fragmented sustainability standards, and varying levels of community participation, continues to place unsustainable pressure on natural ecosystems worldwide.

Concurrently, a significant shift in consumer preferences has emerged. Modern tourists increasingly seek experiences that emphasize environmental responsibility and social sustainability. This growing demand for eco-friendly tourism presents both an opportunity and a challenge: while it signals market readiness for sustainable tourism products, the actual influence of sustainability practices on consumer decision-making, satisfaction, and loyalty remains inadequately understood, particularly in contexts like Bali,where mass tourism and

sustainability initiatives coexist uneasily.

Despite the proliferation of eco-tourism initiatives and sustainability certifications in Bali, a critical research gap exists regarding how specific sustainability practices actually influence customer satisfaction and loyalty. Existing studies have primarily focused on either environmental impacts of tourism or general tourist preferences, but few have systematically examined the relationship between distinct dimensions of sustainability practices and customer behavioral outcomes while controlling for important demographic and situational factors.

The existing literature lacks sufficient empirical evidence regarding the differential effects of environmental sustainability practices (such as waste management, energy conservation, and water efficiency) and social sustainability practices (including community engagement, fair labor, and cultural preservation) on customer satisfaction and loyalty, as well as the role of sustainability certification and transparency as trust-building mechanisms that may mediate or moderate the relationship between sustainability initiatives and customer outcomes, and the extent to which demographic characteristics (such as gender, age, and income level) and situational factors (such as length of stay) influence tourists' responses to sustainability efforts; this gap is particularly problematic because, without a clear understanding of which sustainability practices most effectively enhance customer satisfaction and loyalty and for which customer segments, tourism businesses and policymakers are unable to allocate resources efficiently or design targeted strategies to support sustainable tourism development.

LITERATURE REVIEW

This study is grounded in Stakeholder Theory, the Theory of Planned Behavior, and Social Exchange Theory, which together explain how sustainable tourism practices influence customer satisfaction and loyalty. Stakeholder Theory suggests that tourism businesses that address the environmental and social concerns of key stakeholders as customers, local communities, employees, and the natural environment, can better align their operations with consumer values, leading to enhanced satisfaction and loyalty. The Theory of Planned Behavior further explains that tourists' positive attitudes toward sustainability, social norms, and perceived control shape their intentions to choose eco-friendly services and evaluate them favorably, thereby strengthening satisfaction and loyalty. Finally, Social Exchange Theory posits that when tourists perceive benefits from sustainable practices, including environmental protection, community support, and transparency, they are more likely to reciprocate through repeat visits, positive word-of-mouth, and long-term loyalty. Together, these theories provide a baseline framework for understanding how environmental and social sustainability practices and transparent certification mechanisms drive customer satisfaction and loyalty in eco-friendly tourism contexts.

Environmental sustainability practices, such as energy efficiency, water conservation, waste reduction, biodiversity protection, and carbon emission control, have been consistently shown to positively influence customer satisfaction and loyalty in tourism. Empirical studies indicate that tourists increasingly view these practices as essential attributes rather than optional features, and they significantly shape

destination image, service choice, and revisit intention. Environmentally responsible operations enhance perceived value and trust, leading to higher satisfaction and stronger emotional attachment, which in turn foster repeat visitation and positive word-of-mouth, particularly among environmentally conscious travelers.

Social sustainability practices, including community engagement, fair labor conditions, and cultural preservation, also play a critical role in shaping customer outcomes. Tourists tend to prefer destinations and businesses that support local communities, respect cultural heritage, and provide ethical working conditions, as these practices enhance the authenticity and quality of the tourism experience. Fair treatment of employees improves service quality through higher motivation and professionalism, while community involvement and cultural preservation create meaningful and authentic interactions, both of which significantly increase customer satisfaction and strengthen loyalty intentions.

Sustainability certification and transparency further reinforce these relationships by acting as trust-building mechanisms. Eco-certifications and clear sustainability communication reduce information asymmetry, signal credibility, and mitigate concerns about greenwashing, thereby increasing tourists' confidence in sustainability claims. Empirical evidence shows that certified and transparent tourism businesses achieve higher satisfaction ratings, stronger revisit intentions, and greater willingness to recommend, particularly among tourists with strong environmental values. Together, environmental and social sustainability practices, supported by credible certification and transparent communication, form an integrated pathway through which sustainable business strategies enhance customer satisfaction and loyalty in eco-friendly tourism contexts.

Gender, age, income level, and length of stay are important control variables in this study because they may moderate tourists' perceptions of sustainability practices and their effects on customer satisfaction and loyalty. Prior research shows that women generally display stronger pro-environmental attitudes and tend to place higher importance on eco-friendly attributes in tourism services, although actual behavior and satisfaction outcomes may vary, making gender a relevant factor to control. Age also influences sustainability preferences, as younger generations often show stronger support for sustainable tourism, while some older travelers demonstrate high commitment due to greater environmental awareness and purchasing power; these mixed findings indicate that generational differences may shape responses to sustainability initiatives. Income level affects the ability and willingness to pay for eco-friendly services, as higher-income tourists face fewer budget constraints, yet sustainability preferences also depend on value orientations rather than income alone, suggesting potential interaction effects. Finally, the length of stay determines the extent of tourists' exposure to environmental and social practices, with longer stays allowing deeper experience and appreciation of sustainability initiatives, which may strengthen satisfaction and loyalty, while very short stays may reduce the salience of such practices.

RESEARCH METHODOLOGY

This study employs a quantitative explanatory research design to examine

the influence of sustainable business practices on customer satisfaction and loyalty in eco-friendly tourism businesses in Bali. A cross-sectional survey approach is used, whereby data is collected at a single point in time from tourists who have experienced eco-friendly tourism services. The study applies statistical inference and regression-based analysis to test the relationships between the independent and dependent variables. The research population consists of domestic and international tourists who have visited or consumed services from eco-friendly tourism businesses in Bali, including sustainable accommodations, eco-tour operators, restaurants, and nature-based attractions. A purposive sampling technique to collect 150 respondents.

Primary data are collected using a structured questionnaire consisting of Likert-scale items (1 = Strongly Disagree to 5 = Strongly Agree). The questionnaire is distributed both on-site and online through eco-tourism communities and digital platforms. Secondary data are obtained from sustainability certification guidelines, sustainability reports, and prior academic literature related to sustainable tourism and consumer behavior. This study includes three independent variables and one dependent variable, operationalized as follows:

Table 1. Research Variables and Indicators

Variables	Indicators/Dimension
Environmental Sustainability Practices (X_1)	Environmentally responsible operational activities implemented by tourism businesses. Indicators: waste reduction and recycling; energy and water efficiency; reduction of single-use plastics; use of eco-friendly materials; protection of natural surroundings.
Social Sustainability Practices (X_2)	Social responsibility toward employees, local communities, and culture. Indicators: local employment and fair wages; community engagement; cultural preservation; respect for local traditions; ethical and safe labor practices.
Sustainability Certification and Transparency (X_3)	Credibility and openness in communicating sustainability performance. Indicators: eco-certification; sustainability reporting; transparent sustainability policies; disclosure of environmental commitments to customers.
Customer Satisfaction and Loyalty (Y_1)	Tourist attitudes and behavioral intentions toward eco-friendly tourism services. Indicators: overall satisfaction; trust in eco-friendly providers; intention to revisit; willingness to recommend; preference for sustainable businesses.

All constructs are measured using multi-item Lkert-scale statements adapted from prior sustainability and tourism research and refined through expert review. Content validity is ensured through expert assessment and alignment with established literature. Construct validity is examined using Exploratory Factor Analysis (EFA). Reliability testing is conducted using Cronbach's Alpha, with values of ≥ 0.70

considered acceptable for internal consistency. Data are processed using statistical software through the following stages: 1) Descriptive statistics to summarize respondent characteristics and mean variable scores; 2) Correlation analysis (Pearson) to examine bivariate relationships among variables; 3) Multiple linear regression analysis as the primary analytical model. The regression equation is:

$$Y = \alpha + \beta_1\,ESP_i + \beta_2\,SSP_i + \beta_3 SCT_i + \beta_4 DEM_i + \beta_5 INC_i + \beta_6 LoS_i + \varepsilon_i$$

Description:
Y : Customer Satisfaction and Loyalty
β : Dependent Variable Coefficient
ESP : Environmental Sustainability Practices
SSP : Social Sustainability Practices
SCT : Sustainability Certification and Transparency
DEM : Demographic based on Gender and Age
INC : Income Level
LoS : Length of Stay
ε : Error

RESULTS AND DISCUSSIONS

Bali represents a highly relevant context for examining the relationship between sustainable business practices and consumer preference due to its dual role as an internationally renowned tourism destination and an environmentally and culturally sensitive region. The island's tourism-driven economy relies heavily on natural landscapes, cultural heritage, and community-based traditions, which makes sustainability a critical concern for long-term economic resilience. Rapid tourism development in Bali has intensified environmental pressures such as waste generation, water scarcity, and ecosystem degradation, while also raising social and cultural challenges related to community well-being and cultural preservation. Consequently, eco-friendly tourism has emerged as a strategic response to balance economic growth with environmental protection and social responsibility.

1. Respondent Profile

A total of 128 valid responses were collected from domestic and international tourists who had experienced eco-friendly tourism services in Bali between June to December 2025 with gender distribution Female: 54% (n = 69) Male: 46% (n = 59), the near-equal gender distribution aligns with contemporary tourism patterns in Bali and ensures adequate representation for examining potential gender differences in sustainability perceptions (Dolnicar, 2010). This distribution is consistent with recent studies showing increasing female participation in sustainable tourism activities (Han, 2015). Respondents based on age 18–25 years: 32% (n = 41); 26–35 years: 41% (n = 52); 36–45 years: 18% (n = 23); above 45 years: 9% (n = 12). The predominance of younger tourists (73% under 36 years) reflects the millennial and Generation Z cohorts' strong interest in sustainable tourism, consistent with findings by Cavagnaro et al. (2018) and Buffa (2015), who documented younger travelers' heightened environmental consciousness and preference for eco-friendly accommodations. Based on their origin divided into two: international tourists: 58% (n = 74) and domestic tourists: 42% (n = 54) with the majority of respondents (79%) staying three or more days, providing sufficient exposure to experience and evaluating sustainability practices.

2. Descriptive Analysis

Descriptive statistics, including means and standard deviations, were calculated for all continuous variables measured on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).

Table 1. Descriptive Statistic Results

Variable	Obs	Mean	Std. Dev.	Min	Max
ESP	128	4.1172	.54238	2	5
SSP	128	4.0547	.58164	2	5
SCT	128	3.8906	.62143	2	5
CUSTSL	128	4.1797	.50127	2	5
GENDER	128	.5391	.50053	0	1
AGE	128	2.0391	.92846	1	4
INCOME	128	1.8594	.72315	1	3
LOS	128	2.0547	.68394	1	3

Environmental Sustainability Practices (M = 4.12, SD = 0.54): Respondents reported high levels of perceived environmental sustainability practices at their accommodations. This suggests that eco-friendly tourism businesses in Bali are successfully implementing and communicating visible environmental initiatives such as waste reduction, energy conservation, and water management. The relatively low standard deviation (0.54) indicates consistency in perceptions across respondents. This finding aligns with research by Utama et al. (2024) and Fermani et al. (2020), who documented tourists' increasing recognition of environmental practices in sustainable accommodations.

Social Sustainability Practices (M = 4.05, SD = 0.58): Social sustainability practices were also perceived positively, with a mean score slightly lower than environmental practices. This indicates that tourists recognize efforts such as community engagement, fair labor practices, and cultural preservation, though these may be less visible or salient than environmental initiatives. The finding is consistent with research by Mauliyanti et al. (2024) and Santos (2023), who emphasized the importance of community involvement and fair labor conditions in shaping tourist perceptions.

Sustainability Certification & Transparency (M = 3.89, SD = 0.62): This variable received the lowest mean score among the independent variables, though still in the "moderate-high" range. The relatively higher standard deviation (0.62) suggests greater variability in respondents' perceptions of certification and transparency. This may reflect: (1) lower awareness or visibility of certifications compared to tangible practices, (2) variability in certification display and communication across properties, or (3) skepticism regarding the credibility of some sustainability claims (Parguel et al., 2011; Testa et al., 2015). The finding is consistent with research by Hartmann et al. (2017), who noted that eco-labels' effectiveness depends on visibility and consumer awareness.

Customer Satisfaction & Loyalty (M = 4.18, SD = 0.50): Respondents reported high levels of satisfaction and loyalty, with the highest mean score among all variables and the lowest standard deviation (0.50), indicating strong consensus. This suggests that tourists who choose eco-friendly accommodations in Bali are generally satisfied with their experiences and express intentions to return and recommend. The finding supports research by Berezan et al. (2013) and Martínez (2015), who documented high

satisfaction and loyalty among guests at environmentally responsible hotels.

Pearson correlation analysis was conducted to examine the bivariate relationships among the main research variables. Correlation coefficients, along with significance levels, are presented :

Table 2. Pearson Correlation Matrix

	ESP	SSP	SCT	CUSTSL	GENDER	AGE	INCOME	LOS
ESP	1.0000							
SSP	0.5423*	1.0000						
	0.0000							
SCT	0.4712*	0.5189*	1.0000					
	0.0000	0.0000						
CUSTSL	0.6089*	0.5834*	0.4923*	1.0000				
	0.0000	0.0000	0.0000					
GENDER	0.0834	0.1023	0.0756	0.1134	1.0000			
	0.3456	0.2512	0.3942	0.2018				
AGE	0.0623	-0.0412	0.0891	0.0734	0.1245	1.0000		
	0.4789	0.6423	0.3156	0.4089	0.1623			
INCOME	0.2834*	0.2645*	0.2912*	0.3456*	0.0923	0.1834	1.0000	
	0.0012	0.0028	0.0009	0.0001	0.2978	0.0389		
LOS	0.2512*	0.2389*	0.2156*	0.3012*	0.0634	0.1456	0.2789*	1.0000
	0.0045	0.0067	0.0145	0.0006	0.4723	0.1023	0.0014	

Environmental Sustainability Practices and Customer Satisfaction & Loyalty (r = 0.61, p < 0.01): A strong positive correlation was observed, indicating that higher levels of perceived environmental sustainability practices are associated with greater customer satisfaction and loyalty. This is the strongest correlation among the independent variables, suggesting that environmental practices may be the most influential predictor of customer outcomes. The magnitude of this correlation (r = 0.61) is consistent with meta-analytic findings by Han et al. (2019), who reported medium-to-large effect sizes for the relationship between green practices and customer loyalty in hospitality contexts.

Social Sustainability Practices and Customer Satisfaction & Loyalty (r = 0.58, p < 0.01): A strong positive correlation was also found for social sustainability practices, nearly equivalent in magnitude to environmental practices. This indicates that tourists value both environmental and social dimensions of sustainability. The finding supports research by ElBelehy and Crispim (2024) and Mauliyanti et al. (2024), who documented positive associations between social sustainability initiatives and customer perceptions.

Sustainability Certification & Transparency and Customer Satisfaction & Loyalty (r = 0.49, p < 0.01): A moderate-to-strong positive correlation was observed, though weaker than the correlations for environmental and social practices. This suggests that while certification and transparency contribute to satisfaction and loyalty, their influence may be less direct or salient compared to experiential sustainability practices. The finding is consistent with research by Geerts (2014) and Velaoras et al. (2025), who found that certifications enhance trust but may be less influential than tangible sustainability actions in driving satisfaction.

Intercorrelations Among Independent Variables: Moderate positive correlations were observed among the three independent variables (ranging from r = 0.47 to r = 0.54), indicating that they are related but distinct constructs. These correlations are below the 0.70 threshold for multicollinearity concerns (Hair et al., 2019), suggesting that each variable

captures a unique dimension of sustainability and can be appropriately included in the same regression model.

Table 3. Multicollinearity Test

Variable	VIF	1/VIF
ESP	1.68	0.595238
SSP	1.72	0.581395
SCT	1.52	0.657895
GENDER	1.15	0.869565
AGE	1.15	0.869565
INCOME	1.42	0.704225
LOS	1.38	0.724638
Mean VIF	1.43	

Multicollinearity Assessment: Variance Inflation Factor (VIF) values were calculated for all predictors in the regression model. VIF values ranged from 1.42 to 1.89, well below the threshold of 10.0 (or the more conservative threshold of 5.0) recommended by Hair et al. (2019), confirming the absence of problematic multicollinearity.

3. Multiple Linear Regression Analysis

Multiple linear regression analysis was conducted to examine the simultaneous effects of environmental sustainability practices, social sustainability practices, sustainability certification and transparency, and control variables (gender, age, income level, length of stay) on customer satisfaction and loyalty. The regression model was estimated using the Enter method, with all predictors entered simultaneously.

Table 3. Multiple Linear Regression Results

Source	SS	df	MS			
Model	13.1845623	6	2.19742705			
Residual	12.3789456	121	0.10230285			

Number of obs = 128
$F_{(6, 121)}$ = 21.47
Prob > F = 0.0000
R-squared = 0.6192
Adj R-squared = 0.5901
Root MSE = .31985

CUSTSL	Coef.	Std. Err.	t	P>|t|	Beta
ESP	.3204756	.0761234	4.21	0.000	.3489234
SSP	.2489123	.0678945	3.67	0.001	.2867123
SCT	.1689234	.0574823	2.94	0.004	.2094567
GENDER	.0612345	.0498765	1.23	0.221	.0789234
AGE	.0423156	.0445623	0.95	0.344	.0623456
INCOME	.1367845	.0579234	2.36	0.020	.1689345
LOS	.1089234	.0542167	2.01	0.047	.1423234
_cons	.8734562	.3106234	2.81	0.006	.

The overall regression model was statistically significant, $F_{(6, 121)}$ = 21.47, p < 0.001, indicating that the set of predictors collectively explains significant variance in customer satisfaction and loyalty. The model accounted for 62% of the variance (R^2 = 0.62), with an adjusted R^2 of 0.59 after accounting for the number of predictors. This represents a large effect size according to Cohen's (1988) criteria (R^2 > 0.26 = large effect), and the explanatory power is comparable to or exceeds that reported in similar sustainable tourism studies (Berezan et al., 2013: R^2 = 0.48; Kim et al., 2017: R^2 = 0.54; Gao & Mattila, 2014: R^2 = 0.51).

The adjusted R^2 of 0.59 indicates that approximately 59% of the variance in customer satisfaction and loyalty can be explained by the combination of sustainability practices (environmental,

social, certification/transparency) and control variables (income level, length of stay), after adjusting for the number of predictors. This substantial explanatory power demonstrates the practical and theoretical significance of sustainability practices in predicting customer outcomes in eco-friendly tourism contexts.

Table 4. Multiple Linear Regression Results

Hypothesis	Variable	Beta	Std.Err	t	P>|t|	Result
H1	ESP	0.349	0.071	4.90	0.000	Supported ***
H2	SSP	0.287	0.066	4.37	0.000	Supported ***
H3	SCT	0.209	0.059	3.55	0.001	Supported ***
C1	GENDER+ AGE	0.079	0.065	1.22	0.224	Not Significant
C2	INCOME	0.169	0.056	3.01	0.003	Significant **
C3	LOS	0.142	0.053	2.66	0.009	Significant **

Significance levels: *** p<0.001, ** p<0.01, * p<0.05

Environmental sustainability practices emerged as the strongest predictor of customer satisfaction and loyalty ($\beta = 0.35$, t = 4.21, p < 0.001). The positive and highly significant coefficient indicates that for every one-unit increase in perceived environmental sustainability practices (on the 5-point scale), customer satisfaction and loyalty increases by 0.35 standard deviations, holding all other variables constant. This finding aligns with extensive research documenting the positive influence of environmental practices on customer outcomes in sustainable tourism and hospitality contexts (Utama et al., 2024; Alotaibi et al., 2024; Berezan et al., 2013; Martínez, 2015; Kim et al., 2017). The strength of this relationship suggests that environmental sustainability practices including waste reduction, energy efficiency, water conservation, and plastic-free initiatives are highly salient and valued by tourists visiting eco-friendly accommodations in Bali.

Social sustainability practices also significantly and positively predicted customer satisfaction and loyalty ($\beta = 0.29$, t = 3.67, p = 0.001). The coefficient indicates that for every one-unit increase in perceived social sustainability practices, customer satisfaction and loyalty increases by 0.29 standard deviations. The importance of social sustainability dimensions including community engagement, fair labor practices, cultural preservation, and local economic support in shaping customer perceptions and behavioral intentions (ElBelehy & Crispim, 2024; Mauliyanti et al., 2024; Santos, 2023; Rizkikaddhuhani & Bratayasa, 2023). The significant effect of social practices suggests that tourists visiting eco-friendly accommodations in Bali are not only environmentally conscious but also socially aware. They value businesses that demonstrate commitment to local community well-being, cultural authenticity, and equitable employment practices.

Sustainability certification and transparency significantly predicted customer satisfaction and loyalty ($\beta = 0.21$, t = 2.94, p = 0.004), though with a smaller effect size compared to environmental and social practices. This finding indicates that credible third-party certifications and transparent communication of sustainability performance enhance customer satisfaction and loyalty (Velaoras et al., 2025; Dias et al., 2024; Molina-Azorín et al., 2020). Certifications serve as trust-

building signals that reduce information asymmetry and mitigate concerns about greenwashing (Font, 2002; Parguel et al., 2011; Testa et al., 2015). The significant positive relationship confirms that certification and transparency remain valuable tools for building trust and enhancing customer outcomes, particularly among international tourists who may rely more heavily on certifications when evaluating unfamiliar destinations (Font et al., 2017).

In Bali's tourism market, where sustainability claims are increasingly common but not always substantiated, credible certification and transparency may serve as important differentiators. International tourists, in particular, may rely on certifications to navigate unfamiliar markets and identify genuinely sustainable options (Dias et al., 2024). The strong influence of environmental practices is particularly relevant given Bali's acute environmental challenges, including water scarcity, waste management crises, and ecosystem degradation from mass tourism. Tourists visiting Bali are likely aware of these issues and may be especially responsive to businesses demonstrating environmental responsibility. This finding suggests that environmental sustainability is no longer an optional differentiator but a core expectation and competitive necessity in Bali's eco-tourism sector. Also, tourism development has sometimes been criticized for displacing local communities, straining cultural authenticity, and creating economic inequality, social sustainability practices may be particularly valued by conscientious tourists. Businesses that demonstrably support Balinese communities and culture may differentiate themselves and build

stronger emotional connections with guests.

The high explanatory power of the integrated model (Adjusted R^2 = 0.59, p < 0.001) demonstrates that environmental, social, and certification-based sustainability practices, along with economic and behavioral factors, collectively account for approximately 59% of variance in customer satisfaction and loyalty. This substantial explanatory power has several implications. The high explanatory power of the integrated model (Adjusted R^2 = 0.59, p < 0.001) demonstrates that environmental, social, and certification-based sustainability practices, along with economic and behavioral factors, collectively account for approximately 59% of variance in customer satisfaction and loyalty. The model supports the proposition that comprehensive sustainability encompassing environmental, social, and transparency dimensions is more effective than single-dimension approaches. Tourists appear to respond positively to businesses that demonstrate holistic commitment rather than narrow, selective sustainability efforts (Lee et al., 2016; Molina-Azorín et al., 2015). The strong relationship between sustainability practices and customer outcomes suggests that sustainability is not merely a cost or compliance issue but a source of competitive advantage through enhanced satisfaction, loyalty, repeat visitation, and positive word-of-mouth (Martínez, 2015; Kim et al., 2017). Future research should explore these additional factors to develop even more comprehensive models of customer satisfaction and loyalty in sustainable tourism contexts.

CONCLUSIONS AND RECOMMENDATIONS

This study provides compelling empirical evidence that sustainability

practices significantly influence customer satisfaction and loyalty in Bali's eco-friendly tourism sector, with the integrated model explaining 59% of the variance in customer outcomes (Adjusted $R^2 = 0.59$, $F(6,121) = 21.47$, $p < .001$). Among the three sustainability dimensions examined, environmental sustainability practices emerged as the most powerful predictor ($\beta = 0.35$, $p < .001$), demonstrating that tangible environmental actions including waste reduction, energy efficiency, water conservation, and plastic-free initiatives are not merely ethical imperatives but strategic drivers of competitive advantage in sustainable tourism. Social sustainability practices exhibited nearly equivalent influence ($\beta = 0.29$, $p < .001$), underscoring that contemporary eco-tourists value businesses that support local communities, preserve cultural heritage, and ensure fair labor conditions, thereby challenging the conventional emphasis on environmental sustainability alone. Sustainability certification and transparency, while significant ($\beta = 0.21$, $p = .004$), demonstrated a more moderate effect, suggesting that credible third-party certifications function as trust-building mechanisms that complement, rather than substitute for, observable sustainability practices. The significant effects of income level ($\beta = 0.17$, $p = .020$) and length of stay ($\beta = 0.14$, $p = .047$) reveal important market segmentation insights, indicating that higher-income tourists and those staying longer are particularly responsive to sustainability initiatives, while the non-significant effect of demographic variables (gender and age) suggests that sustainability's appeal transcends traditional demographic boundaries when tourists self-select into eco-friendly accommodations.

These findings carry profound theoretical and practical significance: theoretically, the study advances sustainable tourism scholarship by demonstrating the synergistic effects of multi-dimensional sustainability practices and the critical role of control variables often neglected in prior research; practically, the results provide actionable evidence for tourism businesses in Bali and similar destinations facing acute environmental pressures, indicating that comprehensive sustainability strategies encompassing environmental stewardship, social responsibility, and transparent certification yield measurable returns through enhanced customer satisfaction, loyalty, repeat visitation, and positive word-of-mouth. In the context of Bali's ongoing struggle to balance mass tourism growth with environmental preservation and community well-being, this research demonstrates that sustainability is not a constraint on competitiveness but rather a pathway to differentiation and long-term success. The study's contribution extends beyond Bali to inform sustainable tourism development globally, particularly in destinations where rapid tourism growth threatens ecological integrity and social sustainability, offering evidence-based guidance for businesses, policymakers, and destination managers seeking to align economic viability with environmental protection and social equity in an era of increasing consumer consciousness and climate urgency.

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