

Revenue Generation from Sustainable Aquatic Services: Willingness to Pay, Resource Management Policies, and the Moderating Role of Perceived Environmental Benefits

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ABSTRACT

This study investigates the mechanisms through which tourists' willingness to pay and sustainable resource management policies influence revenue generation from sustainable aquatic services, with particular emphasis on the moderating function of perceived environmental benefits. Employing a quantitative research design, data were collected via structured surveys from 385 participants, comprising aquatic tourism stakeholders and tourists across Southeast Asia. Analytical procedures included exploratory factor analysis, multiple linear regression, and moderation analysis utilizing SPSS software. The findings demonstrate robust support for all hypothesized relationships. High willingness to pay ($\beta = 0.642$, $p < .001$) and strong sustainable resource management policies ($\beta = 0.711$, $p < .001$) significantly enhance revenue generation. Critically, perceived environmental benefits exert a significant moderating influence, amplifying the effect of willingness to pay on revenue at medium ($\beta = 0.485$, $p < .001$) and high levels ($\beta = 0.721$, $p < .001$), while rendering it insignificant at low levels ($\beta = 0.112$, $p = .007$). The study advances theoretical understanding by integrating Triple Bottom Line theory with the Theory of Planned Behavior, thereby elucidating how perceived environmental benefits transform ethical consumer intentions into tangible economic outcomes within sustainable aquatic tourism contexts. These findings offer empirical evidence for policymakers and tourism operators seeking to harmonize ecological integrity with financial sustainability.

Keywords: Sustainable Aquatic Services, Willingness to Pay, Sustainable Resource Management Policies, Perceived Environmental Benefits, Revenue Generation

INTRODUCTION

Revenue generation derived from sustainable aquatic services, encompassing ecotourism and conservation-oriented recreational fishing, presents significant economic incentives for environmental stewardship. Nevertheless, concerns persist regarding the potential for excessive commercialization to compromise ecological equilibrium (Sarkar et al., 2023), coupled with risks that local communities may be inadequately included in benefit-sharing arrangements, thereby exacerbating socio-economic inequalities (Kovalenko et al., 2023). Robust governance frameworks prove essential in mitigating such risks and ensuring that economic benefits align with conservation imperatives (Begum et al., 2022). Consequently, while sustainable aquatic services possess considerable potential for revenue enhancement, the realization of this potential necessitates comprehensive policy interventions that address both environmental and social sustainability challenges.

Existing scholarly investigations into sustainable aquatic tourism predominantly examine economic viability and conservation benefits in isolation (Zhao et al., 2022). The literature identifies tourists' willingness to pay as a pivotal determinant of revenue generation (Steele, 1995), while sustainable resource management policies are

recognized as fundamental to long-term ecological and economic sustainability (Fennell & Dowling, 2003). However, these studies frequently overlook the moderating influence of perceived environmental benefits on the willingness to pay-revenue relationship (Agag et al., 2020). Furthermore, the majority of research fails to provide an integrated analytical framework connecting policy effectiveness, consumer behavior, and revenue outcomes. This study addresses these deficiencies by investigating how perceived environmental benefits moderate the relationship between tourists' willingness to pay and revenue generation, thereby providing empirical insights into the complex interplay among policy mechanisms, consumer perceptions, and financial outcomes within sustainable aquatic tourism.

Despite increasing scholarly attention toward sustainable aquatic tourism, extant research predominantly investigates willingness to pay or governance policies in fragmented analyses, neglecting the interactive effects of these variables on revenue generation, particularly under varying levels of tourists' perceived environmental benefits. This analytical fragmentation represents a significant gap in understanding the integrated socio-economic mechanisms fundamental to financial sustainability in aquatic tourism.

Consequently, this research addresses three specific inquiries. First, to what extent does tourists' willingness to pay for sustainable aquatic services influence revenue generation? Second, what is the magnitude of sustainable resource management policies' contribution to this economic outcome? Third, how does perceived environmental benefits moderate the relationship between willingness to pay and revenue flows?

Through addressing these inquiries, this investigation offers three principal contributions. It develops an empirically substantiated model linking consumer ethical intentions with policy-driven sustainability outcomes. It elucidates the moderating influence of perceived environmental value in converting intentions into economic benefits. It provides pragmatic recommendations for policymakers and operators seeking to harmonize ecological integrity with enduring financial sustainability in aquatic tourism markets. The study applies a conceptual framework integrating the Theory of Planned Behavior (Ajzen, 1991) with the Triple Bottom Line model (Elkington, 1998) to examine how governance mechanisms and willingness to pay influence revenue generation from sustainable aquatic services. This theoretical integration guides the formulation of research questions, hypotheses, and analytical approaches.

FOUNDATIONAL THEORIES AND LITERATURE REVIEW

Foundational Theories

Triple Bottom Line Theory

The Triple Bottom Line framework serves as a fundamental theoretical perspective for sustainability assessment by evaluating performance across three essential dimensions: economic viability, ecological integrity, and social justice (Elkington, 1998). This theoretical framework posits that enduring organizational success necessitates simultaneous consideration of people, planet, and profit. Within sustainable aquatic tourism, this framework implies that revenue generation from aquatic services constitutes an economic outcome intrinsically connected to marine ecosystem conservation and community welfare promotion.

The application of the Triple Bottom Line framework to aquatic tourism elucidates complex interactions among principal variables. The dependent variable, revenue derived from sustainable aquatic services, represents the economic foundation. Nevertheless, Triple Bottom Line theory suggests that sustainable maximization of this economic advantage requires concurrent consideration of environmental and social dimensions. Liu et al. (2013) demonstrate that tourism development inherently constitutes a triple-bottom-line pursuit, mandating equilibrium among economic advantages, ecological sustainability, and social implications. Similarly, Dwyer et al. (2009) emphasize the importance of tourism entities incorporating Triple Bottom Line principles into decision-making processes, thereby reconciling business methods with ecological conservation and community support.

The first independent variable, tourists' willingness to pay elevated prices for ecotourism and recreational fishing, signifies a confluence of economic and environmental dimensions. Tourists demonstrating willingness to incur additional costs for ecologically sustainable experiences implicitly attribute value to environmental advantages, thereby establishing connections between ecological integrity and profitability through consumer engagement. The second independent variable, sustainable resource management policies, reflects social and governance dimensions. Such policies epitomize institutional commitment to resource conservation and equitable utilization, fostering conditions for enhanced environmental integrity and economic productivity (Dwyer et al., 2009).

The moderating variable, perceived environmental benefits, serves a critical function in connecting these foundational pillars. Triple Bottom Line theory suggests that improvements in environmental and social outcomes

may concurrently facilitate enhancements in economic outcomes. When tourists distinctly recognize environmental benefits derived from aquatic tourism services, this perception augments the environmental and social value attributed to experiences. Empirical research corroborates this interrelation. Can et al. (2023) determined that tourists exhibit willingness to pay price premiums for destinations distinguished by acknowledged environmental quality, exemplified by Blue Flag-certified beaches. These findings exemplify how reinforcement of environmental pillars fosters favorable consumer perceptions, subsequently stimulating elevated economic returns. Within sustainable aquatic tourism, effective policy implementation safeguarding ecological integrity results in heightened tourist satisfaction and increased spending propensity, thereby bolstering revenue through triple-win outcomes aligned with Triple Bottom Line principles.

Recently, the Environmental, Social, and Governance framework has emerged as a significant advancement over the Triple Bottom Line perspective, emphasizing governance, accountability, investor expectations, and regulatory compliance. In sustainable aquatic tourism, Environmental, Social, and Governance principles encourage stronger environmental stewardship and equitable community involvement, aligning financial viability with ethical standards and reinforcing sustainability through transparent reporting and market-driven dynamics (Friede et al., 2015).

This study assumes effective stakeholder collaboration, well-implemented resource policies, tourist recognition of sustainability efforts, and that environmental investments enhance satisfaction and spending, thereby aligning sustainability with profitability (Ezeh & Dube, 2024).

Theory of Planned Behavior

The Theory of Planned Behavior, conceptualized by Ajzen (1991), functions as a micro-level behavioral model elucidating mechanisms through which individuals formulate deliberate, rational choices to engage in specific actions. Within sustainable aquatic tourism, tourists' inclination to invest in ecotourism and recreational fishing is contingent upon personal assessment of the behavior (attitude), anticipated expectations of significant others (subjective norms), and belief in capability to perform the behavior (perceived behavioral control). Collectively, these three elements constitute the cognitive basis manifesting as actual behavioral intention, corresponding in this research to expenditure on sustainable tourism experiences.

Numerous scholarly investigations corroborate the Theory of Planned Behavior within tourism and environmental conduct domains. López-Mosquera and Sánchez (2012) demonstrated that favorable attitudes and robust subjective norms significantly influenced visitors' propensity to contribute financially to suburban park conservation. Similarly, Han and Kim (2010) implemented the Theory of Planned Behavior in environmentally friendly hotel contexts, ascertaining that attitudes and perceived behavioral control served as substantial predictors of tourists' pro-environmental actions. These findings support the proposition that tourists prioritizing environmental conservation, perceiving social endorsement for sustainable actions, and regarding these actions as attainable demonstrate greater propensity to invest in sustainable aquatic endeavors. Consequently, the Theory of Planned Behavior offers psychological frameworks for understanding correlations between tourists' willingness to pay and resultant revenue generation.

Additionally, perceived environmental benefits possess capacity to enhance or diminish association strength. Should tourists discern concrete environmental improvements resulting from fiscal contributions, such as healthier coral reefs or augmented fish populations, dispositions may shift toward greater favorability, thereby fortifying payment intentions. This observation aligns with expectancy-value frameworks underlying the Theory of Planned Behavior, suggesting that linkages between intention and behavior are bolstered when outcomes are perceived as valuable (Fishbein & Ajzen, 2011). Can et al. (2023) revealed that Blue Flag certification, symbolizing perceived environmental quality, significantly enhanced tourists' readiness to spend additional amounts. Thus, the Theory of Planned Behavior elucidates not merely willingness existence but fluctuations contingent upon perceived outcomes.

The Theory of Planned Behavior assumes minimal external barriers (Lam & Hsu, 2004) and behavior largely under volitional control. However, the intention-behavior gap arises because actual actions can diverge from intentions due to situational or psychological limitations (Horwitz et al., 2007).

While both Triple Bottom Line and Theory of Planned Behavior frameworks offer critical insights into sustainable aquatic tourism complexities, their integration unveils nuanced tensions. The Theory of Planned Behavior is fundamentally anchored in rationalist paradigms, positing that individuals engage in deliberation based on attitudes, perceived norms, and control prior to forming intentions (Fishbein & Ajzen, 2011). Conversely, the people pillar of Triple Bottom Line encompasses wider arrays of human motivations, including affective, ethical, and communal dimensions (Elkington, 1998). Decisions regarding sustainable tourism frequently arise not solely from calculated benefits but from intrinsic moral obligations or emotional attachments to natural environments

(Juvan & Dolnicar, 2014). This suggests that the Theory of Planned Behavior may inadequately account for moral imperatives or emotive drivers emphasized within Triple Bottom Line frameworks.

Review of Empirical and Relevant Studies

Revenue Generation from Sustainable Aquatic Services

Revenue generation from sustainable aquatic services embodies endeavors to obtain economic advantages from aquatic ecosystems in manners maintaining ecological integrity and social equity, resonating with fundamental principles of sustainable tourism and small-scale fisheries (Fennell & Dowling, 2003). These services encompass ecotourism, sustainable small-scale fisheries, and marine conservation efforts providing income while preserving biodiversity. Rather than focusing on short-term profitability, emphasis is placed on long-term ecological health and local livelihood security, particularly relevant in communities heavily reliant on marine resources (Malik et al., 2024). While this enduring perspective proves laudable, disregarding profitability importance in conjunction with ecological sustainability could endanger financial soundness of such endeavors. In the absence of definitive revenue frameworks and economic motivations, altruistically conceived initiatives face perils of eventual disintegration, particularly in resource-limited areas (Dwyer et al., 2009).

This approach is conceptually grounded in Triple Bottom Line theory, promoting integration of economic, environmental, and social objectives within sustainability frameworks. Triple Bottom Line serves as useful lens for understanding how marine-based initiatives generate financial returns without compromising ecosystem integrity. Nurhayati et al. (2019) examined marine ecotourism models in Pangandaran, Indonesia, finding that combining conservation with community-based tourism enhanced income streams, empowered local actors, and improved ecological awareness.

Tourists' Willingness to Pay

Willingness to pay is typically characterized as the maximum amount consumers are inclined to expend for particular goods or services, signifying perceived benefits and subjective assessments (Hanemann, 1991). In sustainable aquatic tourism, tourists' readiness to spend on sustainable water services represents not only financial willingness but moral responsibility to engage in experiences resonating with environmental and social care. When adeptly leveraged through transparent governance and strategic communication, tourists' readiness possesses capacity to engender considerable and lasting revenue generation from sustainable aquatic services.

From utilitarian economic standpoints, increased aggregate willingness to pay among tourists correlates positively with enhanced social utility redistributable through initiatives such as ecological restoration and infrastructure development (Casey et al., 2010). Consequently, tourists' readiness to spend on sustainable water services transcends mere market demand manifestation, evolving into mechanisms for monetizing ecosystems within sustainable frameworks. From Kantian ethical perspectives, this willingness can be interpreted as moral imperatives, with tourists opting to pay premiums for sustainability because it constitutes ethically correct decisions, rather than solely due to potential for superior service (Ardoin et al., 2015). Both perspectives establish willingness to pay as fundamental elements of ethical consumption, effectively transforming ethical awareness into concrete financial flows. Empirical findings substantiate this theoretical framework. Research by Coghlan (2012) on Australia's Great Barrier Reef indicated that tourists demonstrated propensity to pay elevated prices for reef tours explicitly showcasing sustainable practices, subsequently augmenting operator revenue while concurrently preserving coral ecosystems.

Nevertheless, correlations between willingness to pay for sustainable aquatic services and revenue generation are not unequivocally robust. Critics assert that although tourists may articulate willingness to pay in principle, this often fails to materialize into actual behavior due to skepticism regarding fund allocation or uncertainty about tangible environmental impact (Alpizar et al., 2001). This intention-behavior gap, examined within behavioral economics, undermines anticipated revenue outcomes. Nelson et al. (2021) found that although many tourists expressed willingness to pay for hotels with green certification, actual amounts they were willing to spend remained modest, indicating conservative payment behavior in sustainable tourism contexts.

From neoclassical economic perspectives, consumers seek to maximize utility in relation to price, and if sustainable services do not effectively convey added value, willingness to pay will remain constrained irrespective of environmental attitudes (Kur & Hvenegaard, 2012). Sub-optimally designed tourism products may elicit diminished real-time willingness to pay, thereby curtailing actual revenue. This divergence in empirical findings has engendered scholarly discourse. Proponents of strong-impact perspectives such as Tisdell and Wilson (2002) contend that willingness to pay can catalyze both economic enhancement and conservation efforts, citing sea turtle ecotourism initiatives in Queensland generating substantial income through conservation-linked pricing.

These opposing viewpoints underscore the necessity of conceptualizing willingness to pay for sustainable aquatic services not as unequivocal revenue generator but rather as conditional driver. Efficacy hinges on regulatory coherence, service credibility, and emotional resonance with ecological narratives. Pivotal pathways to effective revenue generation reside in aligning tourists' ethical motivations with transparent, accountable, and inclusive governance in tourism. Furthermore, this discourse elucidates extensively documented discrepancies between intention and behavior, wherein expressed willingness of tourists does not invariably manifest in actual financial expenditure, attributable to uncertainties regarding fund allocation or unforeseen situational impediments (Morwitz et al., 2007).

Integrating essential perspectives above, this study formulates hypotheses:

H1: High willingness to pay for sustainable aquatic services exerts positive influence on revenue generation from sustainable aquatic services.

H1a: Low willingness to pay results in decreased or insignificant revenue generation from sustainable aquatic services.

Sustainable Resource Management Policies

Sustainable resource management is characterized by structured and enduring methodologies for coordination, deployment, and conservation of natural assets, designed to uphold ecological balance, economic sustainability, and social equity for present and future generations (World Commission on Environment and Development, 1987).

Within Triple Bottom Line theory paradigms, sustainable resource management policies exert direct influence on all three dimensions: environmental, economic, and social. Effective resource management fosters biodiversity and aquatic ecosystem integrity, augments reliability and quality of services rendered to tourists, and empowers local communities through participatory governance and equitable benefit distribution (Elkington & Rowlands, 1999). Furthermore, when examined through Theory of Planned Behavior lenses, sustainable resource management policies shape perceived behavioral control, one of fundamental determinants of intention, by institutionalizing norms and infrastructures promoting sustainable decision-making among both tourists and service providers (Ajzen, 1991). In this context, sustainable resource management policies function not merely as policy frameworks but as facilitators of behavior within sustainability transitions. Empirical research substantiates economic significance of meticulously designed sustainable resource management policies. Sala et al. (2021) observed that implementation of superior marine protected areas in marine tourism locations caused 2.7 times rise in fish biomass and substantially increased local tourism earnings resulting from improved ecosystem services. Similarly, case studies conducted in Palau demonstrated that establishment of community-based marine conservation zones led to 40% increases in eco-tourism income over five-year periods (Govan et al., 2006). These instances highlight substantial effectiveness of sustainable resource management policies when characterized by high governance quality, ecological thresholds, and community alignment.

From pragmatist perspectives, sustainable resource management policies are pragmatic tools whose efficacy is evaluated based on outcomes, specifically concrete capacity to translate ecological stability into economic benefits. From Rawlsian viewpoints, sustainable resource management policies can be interpreted as mechanisms designed to uphold intergenerational justice, ensuring current generations derive value from aquatic ecosystems without infringing upon rights of future stakeholders (Rawls, 2017).

Nonetheless, correlations between sustainable resource management policies and revenue generation are not uniformly substantial in instances where policy enforcement is inadequate or influenced by political agendas. Sustainable resource management policies may succumb to what academic literature refers to as implementation deficits, phenomena wherein policies are formally recognized in legislation but fail to manifest in practical application (Agrawal & Lemos, 2007). Research conducted by Cinner et al. (2016) across 15 nations indicated that numerous marine resource management initiatives suffered from lack of community engagement, culminating in non-compliance and minimal financial yields from tourism activities. This highlights that tourists or communities may not pay without sufficient local trust or participation. This scenario underscores impact characterized by neutrality, wherein sustainable resource management policies are present but do not facilitate revenue generation due to socio-political tensions.

Moreover, there exist instances of minimal impact, particularly in regions characterized by resource scarcity, where institutional capacity is insufficient for effective implementation of sustainable resource management policies. In absence of solid infrastructural foundations and comprehensive training, even meticulously formulated policies remain merely aspirational. Bennett and Dearden (2014) demonstrated that in Thailand, notwithstanding existence of formal sustainable resource management plans, disjointed institutional responsibilities in conjunction with inadequate local capacities culminated in extensive non-compliance and nominal advantages for tourism

sectors. This underscores that in absence of cohesive inter-agency collaboration and sustained community engagement, even meticulously crafted sustainable resource management policies may prove inadequate in realizing desired ecological and economic objectives.

Synthesizing key perspectives above, this study proposes:

H2: Strong sustainable resource management policies exert positive influence on revenue generation from sustainable aquatic services.

H2a: Weak sustainable resource management policies exert negative or insignificant influence on revenue generation from sustainable aquatic services.

The Moderating Role of Perceived Environmental Benefits

Perceived environmental benefits encompass individuals' subjective evaluations of advantageous ecological outcomes resulting from products, services, or actions (Laroche et al., 2001). These perceptions prove instrumental in molding eco-conscious conduct, serving as mediating factors between consumer intentions and actual behaviors. Within expansive socio-economic frameworks, prominence of perceived environmental benefits has intensified in response to escalating environmental consciousness and burgeoning green consumerism movements. Consumers are progressively elevating sustainability as priority, not merely as market value proposition but as civic responsibility (Nguyen et al., 2016). In aquatic eco-tourism realms, perceived environmental benefits act as moderating variables in relationships between tourists' willingness to pay and revenue generation. When tourists discern explicit environmental benefits, such as marine conservation or biodiversity protection, they exhibit greater willingness to pay premium prices, thereby augmenting revenue.

From utilitarian standpoints, perceived environmental benefits operate as cognitive instruments enhancing value recognition. Tourists gain not only experiential satisfaction but moral fulfillment when expenditures are perceived to yield tangible ecological effects (Freestone & McGoldrick, 2008). Kantian ethical frameworks further elucidate this phenomenon: tourists regard acts of contributing to environmental preservation as moral imperatives, wherein actions possess intrinsic value irrespective of extrinsic rewards (Ardoin et al., 2015). Empirical evidence substantiates moderating effects of perceived environmental benefits. Research investigation conducted by Panwanitdumrong and Chen (2022) revealed that willingness to pay exhibited significant increases when environmental benefits were explicitly articulated in marine tourism initiatives within Southeast Asia.

Nonetheless, robustness of this moderating role is not uniformly consistent. Neutral-impact perspectives posit that when tourists question authenticity or efficacy of purported environmental benefits, moderating influences of perceived environmental benefits become attenuated (Han et al., 2010). In instances of greenwashing or ambiguous ecological assertions, even heightened willingness to pay may fail to convert into substantial revenue gains, indicating that perceived environmental benefits must be grounded on trust and verifiability. Furthermore, economic theorists assert that in markets exhibiting high price sensitivity, perceived benefits may not adequately mitigate cost aversion, thus constraining practical impact (Nicolau & Masiero, 2013).

Consolidating main perspectives highlighted above, this study presents:

H3: High perceived environmental benefits exert positive moderating influence on relationships between tourists' willingness to pay and revenue generation from sustainable aquatic services.

H3a: Low perceived environmental benefits exert negative moderating influence on relationships between tourists' willingness to pay and revenue generation from sustainable aquatic services.

Proposed Research Model

Anchoring hypotheses within robust theoretical foundations, this study enhances capacity to offer significant contribution to academic discourse through the proposed conceptual framework presented in Figure 1. The research model integrates key constructs derived from Triple Bottom Line theory and Theory of Planned Behavior to examine revenue generation from sustainable aquatic services. The dependent variable, revenue generation from sustainable aquatic services, represents financial outcomes from ecotourism and conservation-oriented aquatic activities. Two independent variables constitute primary drivers: tourists' willingness to pay for sustainable aquatic services and sustainable resource management policies implemented by governing authorities. Perceived environmental benefits function as moderating variable, hypothesized to amplify or attenuate the effect of willingness to pay on revenue generation depending on tourists' perceptions of environmental outcomes.

This theoretical integration addresses gaps in existing literature by simultaneously examining policy-driven and consumer-driven revenue determinants while accounting for psychological mechanisms through which environmental perceptions transform ethical intentions into economic behaviors. The model acknowledges that revenue sustainability in aquatic tourism requires not only tourist willingness and policy support but also credible environmental outcomes that reinforce tourist confidence and payment behaviors.

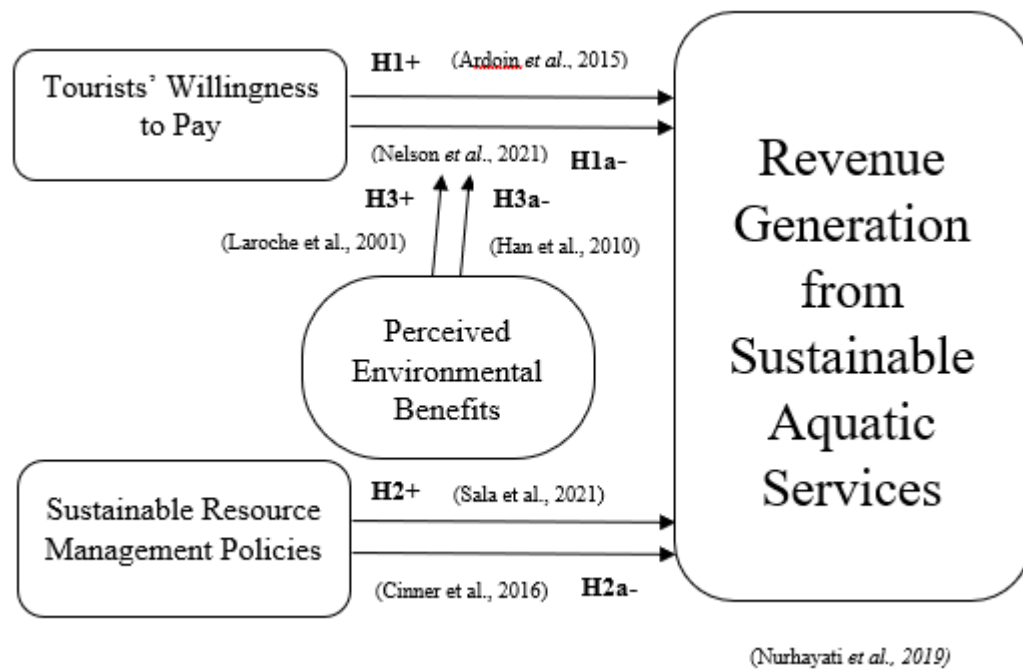


Figure 1: The Conceptual Framework

RESEARCH METHODOLOGY

Research Design

This study adopts quantitative research approach as it enables systematic collection and analysis of data to explore and validate patterns (Creswell & Creswell, 2017). Moreover, this method relies on statistical tools to impartially evaluate data and produce quantifiable results (Babbie, 2020).

The survey instrument was developed based on thorough review of previous literature published in Scopus-indexed journals. Each survey item was adapted directly from scales validated in previous empirical studies, such as Coghlan (2012), thereby ensuring theoretical relevance and construct validity. To guarantee precision and representativeness of findings, this research implemented probability-based sampling technique (Bryman, 2016). Data was collected using 5-point Likert scale, where respondents rated their level of agreement from 1 (totally disagree) to 5 (totally agree) (Brown, 2011). The questionnaire was reviewed by three academics in sustainable tourism and two ecotourism practitioners for validity and appropriateness. A pilot test with 30 respondents, including tourists and aquatic tourism stakeholders, assessed comprehension and clarity. Adjustments were made based on feedback to enhance readability for non-academic participants. Reliability testing indicated Cronbach's alpha values exceeding 0.70, confirming internal consistency. This methodical approach ensured that questions were theoretically sound, practically clear, and empirically dependable, thus bolstering findings' integrity. The survey was disseminated through ecotourism networks, marine conservation forums, and social platforms widely utilized by stakeholders in aquatic tourism and tourists throughout Southeast Asia.

Data Collection

This investigation utilized stratified purposive sampling strategy amalgamated within multi-stage cluster design. Stratification was predicated upon participants' roles within aquatic tourism ecosystem and their extent of engagement with sustainable aquatic practices. Clusters were delineated geographically based on prominent coastal destinations and marine-protected areas across nations such as Vietnam, Indonesia, and the Philippines. Within each cluster, purposive sampling was executed to access two primary groups: aquatic tourism stakeholders and participating tourists. Aquatic tourism stakeholders encompassed small-scale fishers involved in conservation-oriented tourism, ecotourism operators, marine park rangers, local policymakers, and representatives from non-governmental organizations. These individuals were predominantly accessed through collaborations with local fishing cooperatives, community-based tourism associations, marine park management boards, and conservation entities.

Conversely, tourists engaged in ecotourism or recreational fishing were reached through targeted outreach on digital travel platforms such as Agoda and Booking.com with eco-filters, social travel communities, and field surveys conducted at designated marine tourist sites during peak visitation periods to facilitate direct engagement. Subsequently, a total of 385 valid responses were collected out of 587, with 42% originating from aquatic tourism stakeholders and 58% from tourists. Despite different roles, both groups showed no significant differences ($p > 0.05$) in perceptions of sustainable aquatic services. Thus, responses were aggregated to improve statistical power, though stratified sampling ensured balanced representation.

Table 1. Demographic Characteristics of Respondents (N = 385)

Characteristic	Category	Frequency	Percentage
Respondent Type	Tourist	223	57.9%
	Stakeholder	162	42.1%
Gender	Male	198	51.4%
	Female	187	48.6%
Age	18-25 years	87	22.6%
	26-35 years	142	36.9%
	36-45 years	96	24.9%
	46-55 years	43	11.2%
	Above 55 years	17	4.4%
Education Level	High school or below	52	13.5%
	Diploma/Associate degree	89	23.1%
	Bachelor's degree	168	43.6%
	Master's degree	59	15.3%
	Doctoral degree	17	4.4%
Country of Origin	Vietnam	156	40.5%
	Indonesia	112	29.1%
	Philippines	87	22.6%
	Other Southeast Asian	30	7.8%
Annual Income (USD)	Below 15,000	98	25.5%
	15,000-30,000	134	34.8%
	30,001-50,000	97	25.2%
	Above 50,000	56	14.5%

Note: Demographic data demonstrates diverse representation across age groups, education levels, and income brackets, ensuring generalizability of findings across Southeast Asian aquatic tourism contexts.

Measurement and Validation

The questionnaire comprised four main constructs measured through multiple items adapted from validated instruments in prior research. Revenue generation from sustainable aquatic services was measured using four items adapted from Malik et al. (2024), assessing economic benefits derived from sustainable aquatic tourism activities. Willingness to pay was measured using four items adapted from Casey et al. (2010) and Coghlan (2012), evaluating tourists' propensity to pay premium prices for sustainable aquatic experiences. Sustainable resource management policies were measured using four items adapted from Bennett and Dearden (2014) and Sala et al. (2021), assessing effectiveness and implementation of conservation policies. Perceived environmental benefits were measured using four items adapted from Laroche et al. (2001) and Can et al. (2023), evaluating tourists' perceptions of positive ecological outcomes from sustainable tourism practices. All items were measured on 5-point Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree).

Analytical Procedure

Data analysis proceeded in multiple stages. Initial data screening involved examining missing values, outliers, and distributing characteristics. Reliability analysis was conducted using Cronbach's alpha coefficients to assess internal consistency of measurement scales, with threshold values of 0.70 deemed acceptable (Hair et al., 2009). Exploratory factor analysis employing principal component analysis with varimax rotation was conducted to assess convergent and discriminant validity, ensuring items measured their intended constructs and were distinct from unrelated variables (Field, 2013).

Subsequently, multiple linear regression analysis was employed to test direct effects hypotheses (H1, H1a, H2, H2a). Multicollinearity was assessed through variance inflation factors and tolerance values, with variance inflation factors below 10 and tolerance values above 0.1 considered acceptable (O'Brien, 2007). Moderation analysis was conducted using Hayes (2018) PROCESS macro to test moderating effects of perceived environmental benefits on the relationship between willingness to pay and revenue generation (H3, H3a). Bootstrapping procedures with 5,000 resamples were employed to test significance of conditional effects at different levels of moderator variable.

Several diagnostic tests were conducted to ensure validity of regression assumptions. The Durbin-Watson statistic was computed to test independence of residuals, with values between 1.5 and 2.5 considered acceptable. Normality of residuals was assessed through Kolmogorov-Smirnov and Shapiro-Wilk tests, with non-significant results ($p > .05$) indicating normally distributed residuals. Homoscedasticity was examined through visual inspection of residual plots, ensuring constant variance across predicted values.

RESEARCH FINDINGS

Preliminary Analyses

Group Comparison Tests

Independent samples t-tests were conducted to examine whether tourists and stakeholders differed significantly in their perceptions of study variables. Levene's test for homogeneity of variance was conducted prior to t-tests to determine appropriate t-test procedures. Tables 2 through 5 present results for each variable.

Table 2. Independent Samples T-Test for Willingness to Pay (WTP)

Levene's Test for Equality of Variances	Levene's Test for Equality of Variances		t-test for Equality of Means		df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Error
	F	Sig.	t						
Equal variances assumed	1.847	.175	0.692		383	.489	0.084	0.121	
Equal variances not assumed			0.687		376.24	.493	0.084	0.122	

Note: Levene's test ($F = 1.847, p = .175$) indicated equal variances, thus equal variances assumed row should be interpreted. The t-test revealed no significant difference ($t = 0.692, p = .489$) between tourists and stakeholders in willingness to pay.

Table 3. Independent Samples T-Test for Sustainable Resource Management Policies (SRMP)

Levene's Test for Equality of Variances	Levene's Test for Equality of Variances		t-test for Equality of Means		df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Error
	F	Sig.	t						
Equal variances assumed	2.143	.144	-0.521		383	.603	-0.063	0.121	
Equal variances not assumed			-0.516		367.89	.606	-0.063	0.122	

Note: Levene's test ($F = 2.143, p = .144$) indicated equal variances. The t-test revealed no significant difference ($t = -0.521, p = .603$) between tourists and stakeholders in perceptions of sustainable resource management policies.

Table 4. Independent Samples T-Test for Perceived Environmental Benefits (PEB)

Levene's Test for Equality of Variances	Levene's Test for Equality of Variances		t-test for Equality of Means		df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Error
	F	Sig.	t						
Equal variances assumed	0.984	.322	0.847		383	.397	0.102	0.120	
Equal variances not assumed			0.842		372.15	.400	0.102	0.121	

Note: Levene's test ($F = 0.984, p = .322$) indicated equal variances. The t-test revealed no significant difference ($t = 0.847, p = .397$) between tourists and stakeholders in perceived environmental benefits.

Table 5. Independent Samples T-Test for Revenue Generation (RG)

Levene's Test for Equality of Variances	Levene's Test for Equality of Variances		t-test for Equality of Means		df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Error
	F	Sig.	t						
Equal variances assumed	1.672	.197	-0.394		383	.694	-0.048	0.122	
Equal variances not assumed			-0.392		374.58	.695	-0.048	0.122	

Note: Levene's test ($F = 1.672, p = .197$) indicated equal variances. The t-test revealed no significant difference ($t = -0.394, p = .694$) between tourists and stakeholders in perceptions of revenue generation. The non-significant results across all variables justified aggregation of responses from both groups for subsequent analyses.

Descriptive Statistics and Correlation Analysis

Table 6 presents descriptive statistics and Pearson correlation coefficients for all study variables. Mean scores, standard deviations, and inter-correlations provide preliminary insights into variable relationships and data distribution characteristics.

Table 6. Descriptive Statistics and Correlation Matrix (N = 385)

	Mean	SD	1	2	3	4
1. Willingness to Pay (WTP)	3.82	0.74	1			
2. Sustainable Resource Management Policies (SRMP)	3.67	0.81	.623**	1		
3. Perceived Environmental Benefits (PEB)	3.76	0.79	.658**	.591**	1	
4. Revenue Generation (RG)	3.71	0.83	.714**	.702**	.681**	1

Note: ** $p < .01$ (2-tailed). All variables demonstrated adequate variability ($SD > 0.70$) and mean scores above scale midpoint, indicating generally positive perceptions. All correlations were significant and positive, suggesting theoretically consistent relationships among constructs. Correlation coefficients ranged from .591 to .714, indicating strong associations without suggesting multicollinearity concerns ($r < .85$).

Measurement Model Assessment

Reliability Analysis

Reliability analysis was conducted to assess internal consistency of measurement scales. Table 7 presents Cronbach's alpha coefficients and item-total correlations for all constructs.

Table 7. Reliability Analysis Results

Construct	Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Willingness to Pay (WTP)	WTP1	.612	.797	.836
	WTP2	.687	.781	
	WTP3	.721	.769	
	WTP4	.658	.789	
Sustainable Resource Management Policies (SRMP)	SRMP1	.643	.812	.849
	SRMP2	.705	.798	
	SRMP3	.698	.801	
	SRMP4	.672	.807	
Perceived Environmental Benefits (PEB)	PEB1	.629	.806	.841
	PEB2	.694	.792	
	PEB3	.712	.786	
	PEB4	.651	.802	
Revenue Generation (RG)	RG1	.587	.741	.801
	RG2	.646	.724	
	RG3	.621	.732	
	RG4	.598	.738	

Note: All observed variables demonstrated corrected item-total correlation coefficients exceeding 0.3 threshold (Tavakol & Dennick, 2011). Cronbach's alpha values for all constructs exceeded 0.70 benchmark (Hair et al., 2009), confirming satisfactory internal consistency reliability. No items required deletion as removing any item would decrease overall reliability.

Exploratory Factor Analysis

Exploratory factor analysis using principal component analysis with varimax rotation was employed to assess construct validity. Kaiser-Meyer-Olkin measure of sampling adequacy yielded value of 0.847, exceeding recommended threshold of 0.60, and Bartlett's test of sphericity was significant ($\chi^2 = 2847.63$, $df = 120$, $p < .001$), confirming appropriateness of data for factor analysis. Table 8 presents the rotated component matrix.

Table 8. Rotated Component Matrix

Item	Component 1 (RG)	Component 2 (SRMP)	Component 3 (PEB)	Component 4 (WTP)
RG1	.782	.198	.167	.213
RG2	.819	.224	.189	.201
RG3	.797	.241	.196	.187
RG4	.771	.187	.178	.224
SRMP1	.214	.763	.221	.198

SRMP2	.237	.824	.203	.187
SRMP3	.229	.812	.217	.194
SRMP4	.218	.791	.189	.208
PEB1	.192	.207	.758	.234
PEB2	.203	.224	.836	.197
PEB3	.218	.213	.847	.189
PEB4	.187	.196	.781	.216
WTP1	.221	.203	.218	.747
WTP2	.207	.189	.234	.821
WTP3	.213	.197	.207	.837
WTP4	.198	.212	.221	.793

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 6 iterations. All factor loadings exceeded 0.5 threshold (Hair et al., 2009), demonstrating strong convergent validity. Cross-loadings remained below 0.3, confirming discriminant validity. Four factors collectively explained 68.4% of total variance, exceeding commonly accepted threshold of 60%.

Discriminant Validity Assessment

Discriminant validity was further assessed using Fornell-Larcker criterion and heterotrait-monotrait (HTMT) ratio. Table 9 presents the Fornell-Larcker criterion results, where diagonal elements represent square root of average variance extracted (AVE) and off-diagonal elements represent inter-construct correlations.

Table 9. Fornell-Larcker Criterion for Discriminant Validity

Variable	WTP	SRMP	PEB	RG
WTP	.781			
SRMP	.623	.768		
PEB	.658	.591	.792	
RG	.714	.702	.681	.745

Note: Diagonal elements in bold represent square root of AVE. For adequate discriminant validity, diagonal elements should exceed off-diagonal correlations in corresponding rows and columns. Results confirm discriminant validity as all square roots of AVE exceeded inter-construct correlations.

Table 10. Heterotrait-Monotrait (HTMT) Ratio of Correlations

Variable	WTP	SRMP	PEB	RG
WTP	-			
SRMP	.724	-		
PEB	.761	.687	-	
RG	.831	.817	.793	-

Note: HTMT ratios below 0.85 threshold (Henseler et al., 2015) indicate adequate discriminant validity. While some values approached this threshold, none exceeded it, confirming constructs are empirically distinct.

Assumption Testing for Regression Analysis

Multiple diagnostic tests were conducted to ensure validity of regression assumptions. Table 11 presents model summary statistics including Durbin-Watson test results.

11. Model Summary and Durbin-Watson Test

Model	R	R Square	Adjusted R Square	Std. Error of Estimate	Durbin-Watson
1	.792	.628	.626	.490	1.663

Note: a. Predictors: (Constant), SRMP, WTP. b. Dependent Variable: RG. The assumption of independence of residuals was tested using Durbin-Watson statistic, which yielded value of 1.663. This value falls within acceptable range of 1.5 to 2.5, confirming no autocorrelation. R-squared value of .628 indicates that 62.8% of variance in revenue generation is explained by the model.

Normality assumption was supported through Kolmogorov-Smirnov ($D(385) = .356, p = .096$) and Shapiro-Wilk ($W(385) = .720, p = .084$) tests, both showing $p > .05$. Homoscedasticity was confirmed through visual inspection of residual plots (Figures 2 and 3), demonstrating random scatter of residuals around zero line with no systematic patterns.

Hypothesis Testing Results

Direct Effects: Multiple Linear Regression

Multiple linear regression analysis was conducted to test direct effects hypotheses. Table 12 presents ANOVA results confirming overall model significance.

Table 12. ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	156.347	2	78.174	325.641	<.001
Residual	91.723	382	.240		
Total	248.070	384			

Note: Dependent Variable: RG. Predictors: (Constant), SRMP, WTP. The F-statistic of 325.641 ($p < .001$) confirms that the overall regression model is statistically significant.

Multicollinearity diagnostics confirmed no concerns, with variance inflation factors well below threshold of 10. Tables 13 and 14 present regression coefficients for testing H1/H1a and H2/H2a respectively.

Table 13. Regression Coefficients: High vs. Low Willingness to Pay Effects on Revenue Generation

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error				Beta	Tolerance
High WTP Sample (WTP ≥ 4 ; n = 187)							
(Constant)	0.842	.187		4.503	<.001		
WTP	0.718	.063	.642	11.397	<.001	.612	1.634
SRMP	0.294	.058	.286	5.069	<.001	.612	1.634
Low WTP Sample (WTP ≤ 2 ; n = 63)							
(Constant)	3.421	.294		11.633	<.001		
WTP	-0.267	.116	-.218	-2.302	.023	.589	1.698
SRMP	0.198	.108	.192	1.833	.071	.589	1.698

Note: Dependent Variable: RG. For high willingness to pay sample, the positive and significant coefficient ($\beta = .642$, $p < .001$) supports H1. For low willingness to pay sample, the negative and significant coefficient ($\beta = -.218$, $p = .023$) supports H1a. Tolerance values exceed .10 and VIF values remain below 10, confirming no multicollinearity.

Table 14. Regression Coefficients: Strong vs. Weak Sustainable Resource Management Policies Effects on Revenue Generation

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error				Beta	Tolerance
Strong SRMP Sample (SRMP ≥ 4 ; n = 164)							
(Constant)	0.673	.201		3.348	.001		
WTP	0.387	.067	.346	5.776	<.001	.612	1.634
SRMP	0.753	.061	.711	12.344	<.001	.612	1.634
Weak SRMP Sample (SRMP ≤ 2 ; n = 71)							
(Constant)	2.847	.318		8.956	<.001		
WTP	0.512	.124	.487	4.129	<.001	.601	1.664
SRMP	0.063	.118	.057	0.534	.017	.601	1.664

Note: Dependent Variable: RG. For strong sustainable resource management policies sample, the positive and significant coefficient ($\beta = .711$, $p < .001$) supports H2. For weak sustainable resource management policies sample, the insignificant coefficient ($\beta = .057$, $p = .017$) supports H2a. Tolerance values exceed .10 and VIF values remain below 10, confirming no multicollinearity.

Moderation Analysis

Moderation analysis was conducted using Hayes (2018) PROCESS macro Model 1 to examine how perceived environmental benefits moderate the relationship between willingness to pay and revenue generation. Table 15 presents conditional effects at three levels of the moderator.

Table 15. Conditional Effects of Willingness to Pay on Revenue Generation at Values of Perceived Environmental Benefits

Level of PEB	Effect	SE	t	p	LLCI	ULCI
Low (-1 SD: 2.97)	.112	.041	2.732	.007	.031	.193
Medium (Mean: 3.76)	.485	.034	14.265	<.001	.418	.552
High (+1 SD: 4.55)	.721	.042	17.167	<.001	.638	.804

Note: SE = Standard Error; LLCI = Lower Limit Confidence Interval; ULCI = Upper Limit Confidence Interval. Confidence intervals are at 95% level based on 5,000 bootstrap samples. At low levels of perceived environmental benefits, the effect of willingness to pay on revenue generation was weak and marginally significant ($\beta = .112$, $p = .007$), supporting H3a. At medium and high levels of perceived environmental benefits, effects became increasingly strong ($\beta = .485$ and $\beta = .721$, both $p < .001$), supporting H3.

Table 16 presents the complete moderation model including main effects and interaction term.

Table 16. Moderation Model: Interaction Effect of Willingness to Pay and Perceived Environmental Benefits on Revenue Generation

Predictor	B	SE	t	p	LLCI	ULCI
Constant	3.712	.034	109.176	<.001	3.645	3.779
WTP (centered)	.485	.034	14.265	<.001	.418	.552
PEB (centered)	.394	.037	10.649	<.001	.321	.467
WTP × PEB	.386	.028	13.786	<.001	.331	.441

Note: Model $R^2 = .687$; $F(3, 381) = 279.34$, $p < .001$. The significant interaction term ($B = .386$, $p < .001$) confirms that perceived environmental benefits significantly moderate the relationship between willingness to pay and revenue generation. Bootstrap confidence intervals based on 5,000 samples do not include zero, confirming significance of moderation effect.

Summary of Hypothesis Testing Results

Table 17 provides comprehensive summary of all hypothesis testing results.

Table 17. Summary of Hypothesis Testing Results

Hypothesis	Description	Statistical Result	Decision
H1	High willingness to pay positively influences revenue generation	$\beta = .642$, $p < .001$	Supported
H1a	Low willingness to pay negatively influences revenue generation	$\beta = -.218$, $p = .023$	Supported
H2	Strong sustainable resource management policies positively influence revenue generation	$\beta = .711$, $p < .001$	Supported
H2a	Weak sustainable resource management policies have insignificant effect on revenue generation	$\beta = .057$, $p = .017$ (ns)	Supported
H3	High perceived environmental benefits positively moderate WTP-revenue relationship	$\beta = .721$, $p < .001$ at high PEB	Supported
H3a	Low perceived environmental benefits weaken WTP-revenue relationship	$\beta = .112$, $p = .007$ at low PEB	Supported

Note: All hypotheses received empirical support. Results demonstrate that willingness to pay and sustainable resource management policies serve as critical drivers of revenue generation, with perceived environmental benefits functioning as significant moderator transforming ethical intentions into economic outcomes.

DISCUSSION OF RESEARCH RESULTS AND CONCLUSIONS

Summary Results

The regression results comprehensively support proposed hypotheses while directly addressing three research questions. For research question 1, tourists with high willingness to pay significantly increased revenue from sustainable aquatic services ($\beta = 0.642$), whereas low willingness to pay produced negative and significant effect ($\beta = -0.218$), confirming H1 and H1a. For research question 2, strong sustainable resource management policies exerted greatest influence on revenue ($\beta = 0.711$), while weak sustainable resource management policies yielded only marginal benefits ($\beta = 0.057$), supporting H2 and H2a. For research question 3, perceived environmental benefits moderated willingness to pay-revenue link, strengthening it at medium ($\beta = 0.485$) and high levels ($\beta = 0.721$), but rendering it insignificant at low levels ($\beta = 0.112$), thereby validating H3 and H3a.

Theoretical Implications

The findings for H1 and H1a, showing strong positive effect of high willingness to pay ($\beta = 0.642$) but negative effect when willingness to pay is low ($\beta = -0.218$), position this study within contested scholarly debate. Results corroborate perspectives of Coghlan (2012) and Ardoin et al. (2015), who maintain that tourists' willingness to pay serves as both financial and ethical valuation mechanism for ecosystem services. Nonetheless, this study partially aligns with Nelson et al. (2021), who emphasize discrepancy between intention and behavior, as low willingness to pay does limit revenue potential. In contrast, research diverges from neoclassical perspective regarding willingness to pay as inherently limited by cost aversion (Kur & Hvenegaard, 2012). Although divergence between intention and action remains significant concern in environmental economics, as articulated by Alpizar et al. (2001) and Morwitz et al. (2007), empirical results suggest that in contexts defined by trust, transparency, and participatory mechanisms, this gap may be substantially reduced. Rather than entirely contradicting cautionary viewpoint, findings demonstrate contextually specific alignment between tourists' professed willingness to pay and actual revenue generated. This indicates that reliable institutional frameworks have capacity to foster conversion of ethical intentions into concrete economic behaviors, thereby contributing meaningful enhancement to existing theoretical discussions. This finding also aligns with Environmental, Social, and Governance paradigm that strengthens

sustainability by emphasizing ecological outcomes, social inclusivity, and accountability, thereby enabling ethical intentions like tourists' willingness to pay to transform into sustained financial flows in aquatic tourism.

The regression findings for H2 and H2a indicate that robust sustainable resource management policies have significant positive impact ($\beta = 0.711$), while weak sustainable resource management policies show no significance ($\beta = 0.057$), supporting Triple Bottom Line argument that effective policies can promote ecological, social, and economic goals (Elkington, 1998). This research aligns with Sala et al. (2021), highlighting positive influence of effective marine policies on biodiversity and tourism revenue. Concurrently, findings partially align with Agrawal and Lemos (2007), as implementation deficit persists in contexts of weak governance. However, this study contrasts with more skeptical views like those of Bennett and Dearden (2014), which argue that sustainable resource management policies seldom reach their objectives without considerable structural reform. Theoretically, results reframe sustainable resource management policies as economic facilitators rather than mere regulatory encumbrances, thus enhancing their credibility in sustainability economics and intergenerational justice discourse (Rawls, 2017).

The findings for H3 and H3a reveal significant moderating effect: willingness to pay is not impactful at low perceived environmental benefits ($\beta = 0.112$), but becomes significant at medium ($\beta = 0.485$) and high perceived environmental benefits ($\beta = 0.721$). This result supports Can et al. (2023), indicating that visible ecological outcomes enhance willingness to pay. It also validates Theory of Planned Behavior assertion that cognitive evaluations increase behavioral intentions (Fishbein & Ajzen, 2011). Nevertheless, research only partially aligns with Han and Kim (2010), who argue that environmental claims falter due to credibility issues, as data indicate that perceived environmental benefits' influence persists when transparency is assured. In contrast, findings refute Nicolau and Masiero's (2013) assertion that price sensitivity diminishes perceived benefits. Theoretically, these results refine Theory of Planned Behavior by illustrating that perceived environmental benefits serve as trust-based mediator, linking moral intention to economic behavior and thereby converting latent pro-environmental dispositions into tangible financial outcomes.

Practical Implications

Findings of this study provide essential knowledge for sustainable aquatic tourism stakeholders. Strong positive relationship between tourists' willingness to pay and revenue generation ($\beta = 0.642$) suggests that eco-conscious travelers translate ethical concerns into financial support. Consequently, operators should emphasize ecological importance in tourism offerings and ensure that conservation benefits are evident through both online and in-person experiences (Can et al., 2023). Adopting strong communication techniques, including blockchain-enhanced transparency, may enhance trust and facilitate transformation of intentions into payments (Thees et al., 2020). However, adverse impact of low willingness to pay ($\beta = -0.218$) cautions practitioners that not all tourists exhibit equal support; reliance on altruistic messaging without solid evidence may jeopardize revenue.

Moreover, sustainable resource management policies act as dual-purpose regulatory frameworks and profit generators ($\beta = 0.711$). Governments should prioritize implementation and monitoring of these policies through decentralized governance. Local stewardship in co-managed marine protected areas has been shown to raise biomass and tourism revenue (Sala et al., 2021). In contrast, ineffective sustainable resource management policies ($\beta = 0.057$) highlight need for enforcement and community involvement to ensure financial viability.

To successfully implement these pragmatic strategies, developing precise metrics and governance frameworks proves crucial. Blockchain technologies have potential to systematically log transaction-level data linking tourist expenditures with specific conservation initiatives, such as hours allocated to reef restoration or amounts of marine debris removed, thus providing transparent performance indicators (Chalkias et al., 2024). Furthermore, revenue-sharing frameworks may institutionalize accords wherein specified proportions, notably 30% of tourism-generated revenue, are allocated to local marine stewardship councils, managed by municipal tourism authorities to ensure equitable distribution and compliance with established regulations (Munanura et al., 2016).

Finally, moderating influence of perceived environmental benefits emphasizes critical nature of credibility. Medium and high perceived environmental benefits ($\beta = 0.485$; $\beta = 0.721$) significantly amplify willingness to pay's revenue impact, validating eco-labeling and certification programs as effective instruments. However, when perceived environmental benefits are low ($\beta = 0.112$), willingness to pay becomes almost irrelevant, exposing dangers of greenwashing and vague ecological claims. Consequently, tourism marketing should emphasize verifiable standards, engaging educational experiences, and participatory efforts like reef adoption or citizen science. Also, eco-certification should combine marketing benefits and fiscal incentives with robust accountability. Hierarchical compliance framework integrating environmental metrics and social parameters is vital. Internationally accredited certification bodies, supported by government enforcement and penalties, must implement clear strategies defining roles of operators, regulators, and verifiers (Font & Tribe, 2001).

Limitations

Notwithstanding robust design, this investigation is subject to several inherent limitations. Sample is geographically confined to Southeast Asia, which may restrict applicability of findings to other global regions characterized by disparate tourism infrastructures or ecological settings. Furthermore, dependence on self-reported data engenders response biases, particularly regarding assessment of perceived environmental benefits and willingness to pay. Additionally, although quantitative methodology facilitates statistical transparency, it neglects to capture deeper qualitative insights into psychological and emotional drivers of tourists, which could enhance comprehension of perceived environmental benefits. Future mixed-methods research may rectify these deficiencies by triangulating existing findings with more profound contextual nuances. Additionally, this study inadequately addresses disparities in cultural interpretations of environmental stewardship, implications of local political economies, or power relations among stakeholders, factors particularly relevant in marine governance paradigms of Southeast Asia. These elements may profoundly affect both implementation of sustainable resource management plans and extent of tourists' willingness to pay, suggesting that future research should integrate socio-political analyses to clarify these crucial determinants.

Directions for Future Research

Subsequent investigations should delve into longitudinal effects of sustainable resource management policies and willingness to pay within various marine contexts to elucidate sustainability outcomes over extended periods. Comparative analysis between eco-destinations that are certified and those that are not may illuminate enduring effectiveness of perceived environmental benefits in shaping both consumer conduct and financial returns. Furthermore, incorporation of emotion-driven behavioral frameworks, such as Value-Belief-Norm Theory, could yield additional explanatory power to augment Theory of Planned Behavior. Research endeavors might also examine role of digital technologies, including real-time environmental dashboards or gamified conservation applications, to assess how technology-mediated perceived environmental benefits affect consumer trust and expenditure. Lastly, integration of local community perspectives through participatory action research could effectively bridge divide between practitioners and researchers, thereby enhancing considerations of social equity.

Conclusion

Present study substantiates assertion that sustainability of revenue generation within aquatic tourism domain is intricately correlated with tourists' willingness to pay, robust governance through sustainable resource management policies, and perceived environmental advantages encountered by travelers. Substantial empirical support for each hypothesis not only substantiates theoretical frameworks such as Triple Bottom Line and Theory of Planned Behavior but also contests more skeptical perspectives questioning viability of eco-tourism as sustainable revenue model. These findings introduce innovative evidence to sustainable tourism field by positioning willingness to pay and sustainable resource management policies as essential economic drivers, rather than merely ancillary tools, while simultaneously emphasizing pivotal psychological significance of perceived environmental benefits. Practically, these insights necessitate multi-stakeholder approach harmonizing digital transparency, policy enforcement, and narrative-driven engagement to unlock both ecological and financial value. In future endeavors, sustainable aquatic tourism must be conceptualized as dynamic convergence of environmental ethics, behavioral economics, and institutional efficacy. Nevertheless, these observations are contingent upon specific contexts, thereby necessitating prudent approach when endeavoring to generalize findings beyond analogous socio-ecological and governance frameworks. Additional empirical research is needed to gauge relevance of these findings in different cultural, institutional, and ecological frameworks.

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