

Green Human Capital and Innovation Driving Tourism Industry Growth: The Mediating Role of Green Economy Capability

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ABSTRACT

Purpose – The tourism industry in Indonesia faces increasing pressure to adopt sustainable practices due to environmental degradation and resource dependency, while empirical evidence regarding the mechanism linking green human capital and green innovation to tourism industry growth remains limited. This study aims to analyse the effects of Green Human Capital (GHC) and Green Innovation (GI) on Tourism MSME Growth, with Green Economy Capability (GEC) as a mediating variable.

Design/methodology/approach – A quantitative survey was conducted with 200 tourism MSMEs in Makassar, Takalar, Bantaeng, and Sinjai, Indonesia. Data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM).

Findings – The results reveal that Green Human Capital ($\beta = 0.162$; $p = 0.039$) and Green Innovation ($\beta = 0.168$; $p = 0.034$) positively and significantly influence Tourism MSME Growth. Green Economy Capability demonstrates the strongest direct effect on Tourism MSME Growth ($\beta = 0.347$; $p < 0.001$) and is significantly influenced by Green Human Capital ($\beta = 0.512$; $p < 0.001$) and Green Innovation ($\beta = 0.369$; $p < 0.001$). Furthermore, mediation analysis confirms that Green Economy Capability partially mediates the relationship between Green Human Capital and Tourism MSME Growth ($\beta = 0.218$; $p < 0.001$), as well as the relationship between Green Innovation and Tourism MSME Growth ($\beta = 0.241$; $p < 0.001$).

Originality/value – This study positions GEC as a strategic mechanism linking green resources and innovation to sustainable business growth. The model shows substantial explanatory power ($R^2 = 0.624$ for GEC; $R^2 = 0.711$ for Tourism MSME Growth) and strong predictive relevance. The findings support the integration of Resource-Based View and legitimacy theory and highlight the need for tourism MSMEs to strengthen organisational capability to translate green resources and innovation into long-term competitiveness and growth.

ARTICLE INFO

Keywords:

Green Economy;
Capability;
Green Human Capital;
Green Innovation;
Sustainability;
Tourism Industry
Growth.

Article Information:

Received: 20/05/2026

Revise: 10/08/2026

Accepted: 22/08/2026

ISSN:

2985-3168 (Online)

2985-3222 (Print)

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1. Introduction

The transition toward sustainable tourism has become a critical issue, particularly in developing countries where the sector simultaneously drives economic growth and creates environmental pressure. In Indonesia, tourism MSMEs play a strategic role in regional economic development; however, their growth is still largely dependent on natural resource utilisation and has not been fully aligned with sustainability principles (Muafi & Sugarindra, 2023). This condition highlights a structural challenge in balancing economic expansion with environmental preservation, thereby requiring a transformation toward sustainability-oriented capabilities. In this context, Green Human Capital (GHC) and Green Innovation (GI) are widely recognised as key drivers of sustainable organisational performance. GHC refers to the environmental knowledge, skills, and commitment embedded in human resources that enable organisations to implement sustainable practices (Feng & Yang, 2023; Mahmood & Nasir, 2023).

Meanwhile, GI encompasses environmentally friendly products, processes, and managerial innovations aimed at reducing ecological impact while enhancing competitiveness (W. Li & Pang, 2023; Zhou et al., 2023). Prior studies have demonstrated that both GHC and GI contribute positively to organisational performance and sustainability outcomes (Abbas & Najam, 2024; Ahakwa et al., 2024). However, most of these studies focus on direct relationships, providing limited explanation of the internal mechanisms through which these resources are transformed into sustainable growth, particularly in the tourism MSME context.

To address this limitation, this study introduces Green Economy Capability (GEC) as a mediating construct. Conceptually, GEC is distinct from both GHC and GI. While GHC represents a form of strategic resource and GI reflects innovation outcomes, GEC captures the organisational capability to integrate and operationalise green resources and innovations into sustainable economic practices. In other words, GEC functions as a higher-order capability that determines the effectiveness of green resource utilisation in achieving sustainable growth (Khan et al., 2023; Ullah Khan et al., 2023). This distinction is particularly relevant for tourism MSMEs, which often face constraints in translating green knowledge and innovation into measurable economic outcomes.

Theoretically, this study is grounded in the Resource-Based View (RBV), which emphasises that valuable, rare, and inimitable resources such as human capital and innovation—serve as sources of competitive advantage (Freeman et al., 2021; McGahan, 2021). However, RBV alone is insufficient to explain sustainability outcomes in the tourism sector, as these outcomes are also influenced by external stakeholder expectations. Therefore, legitimacy theory is incorporated to explain how organisations gain social acceptance through environmentally responsible practices (Deegan, 2002). In this study, GHC and GI are positioned as internal strategic resources (RBV), while GEC enables organisations to translate these resources into practices that meet societal expectations, thereby strengthening legitimacy and supporting sustainable growth. In addition to Resource-Based View, legitimacy theory also provides an important perspective for explaining sustainable growth among tourism MSMEs. Tourism businesses operate in environments where stakeholders, including tourists, local communities, regulators, and sustainability-conscious consumers, increasingly expect environmentally responsible business practices. Green-oriented organizational behavior may strengthen organizational legitimacy because MSMEs are perceived as socially responsible

and aligned with sustainability expectations. This legitimacy can enhance customer trust, market reputation, business competitiveness, and long-term growth opportunities. Therefore, green initiatives are not only internal strategic resources but also external legitimacy signals that influence business sustainability and market acceptance.

Despite increasing attention to green capabilities, empirical studies examining the mediating role of GEC remain limited. Previous research has predominantly focused on manufacturing and energy sectors (Manigandan et al., 2024; Ogbeibu et al., 2024), with limited exploration in the tourism sector, particularly among MSMEs. Furthermore, existing studies tend to examine GHC, GI, and green capabilities in isolation, resulting in a fragmented understanding of how these elements interact to drive sustainable growth.

Based on these gaps, this study focuses specifically on tourism MSMEs in Makassar, Takalar, Bantaeng, and Sinjai. The objectives of this study are: (1) to analyse the effect of Green Human Capital and Green Innovation on the growth of tourism MSMEs; and (2) to examine the mediating role of Green Economy Capability in this relationship. This study contributes to the literature by providing a more precise conceptualisation of Green Economy Capability as a mediating mechanism that links green resources and innovation to sustainable growth. By integrating Resource-Based View and legitimacy theory within a unified framework, this research offers a more comprehensive explanation of how internal capabilities and external pressures interact in shaping sustainability outcomes in tourism MSMEs.

Previous studies have predominantly examined Green Human Capital and Green Innovation as direct determinants of organizational performance. However, limited studies have explained how these green resources are transformed into organizational capabilities that can systematically generate sustainable growth, particularly in tourism MSMEs. In many tourism MSMEs, green-oriented knowledge and innovation may exist independently but fail to produce substantial growth because organizations lack the operational capability to integrate green practices into daily business routines, market positioning, efficiency strategies, and sustainability-oriented value creation. Therefore, this study positions Green Economy Capability as a strategic mediating mechanism that bridges green resources and sustainable business growth.

2. Literature Review and Hypothesis Development

2.1. Green Human Capital and Tourism Industry Growth

Green Human Capital (GHC) refers to the knowledge, skills, and commitment of human resources in implementing environmentally friendly and sustainable principles (Cheng et al., 2023; Yong et al., 2023). In the context of the tourism industry, GHC is a crucial factor, as the sector is highly dependent on environmental quality and local community engagement. Investing in green-oriented tourism workforce training can improve service quality while preserving the environment (Munawar et al., 2022; Syahidun & Nawangsari, 2022). Previous research has demonstrated that sustainability-focused human capital can enhance industry competitiveness and growth (Albloush et al., 2022; Carlbäck et al., 2024; Wuttaphan, 2020).

Hypothesis 1 (H₁): Green Human Capital has a positive and significant effect on the growth of the tourism industry.

2.2. Green Innovation and Tourism Industry Growth

Green innovation encompasses product, process, and management innovations that are environmentally friendly, supporting efficiency while minimising negative environmental impacts (Taleb & Pheniqi, 2023; Tjahjadi et al., 2020; Wen et al., 2023). In the tourism industry, green innovation can take the form of implementing environmentally friendly technology in hotels, waste management, and developing ecotourism destinations. Green innovation has been proven to improve reputation, enhance customer satisfaction, and expand the sustainable tourism market (Abbas & Najam, 2024; Husnaini & Tjahjadi, 2021; Ni et al., 2023; Sobaih et al., 2020; Weng et al., 2015). Thus, the higher the level of green innovation, the greater the contribution to the growth of the tourism industry.

Hypothesis 2 (H₂): Green Innovation has a positive and significant effect on the growth of the tourism industry.

2.3. Green Human Capital and Green Economy Capability

Green Economy Capability (GEC) refers to an organisation or sector's ability to integrate sustainable economic practices with consideration for social and environmental aspects (Basir et al., 2025; Sharon, et al., 2025; F. Sun et al., 2018). GEC plays a crucial role in shaping GEC, as the green knowledge and skills of the workforce facilitate the adoption of sustainable business strategies (Munawar et al., 2022; Sihombing & Murwaningsari, 2022; Syahidun & Nawangsari, 2022). Research shows that companies with green-oriented human resources are better equipped to develop environmentally friendly strategies and create economic value added (Munawar et al., 2022; Sihombing & Murwaningsari, 2022; Syahidun & Nawangsari, 2022; Yong et al., 2023).

Hypothesis 3 (H₃): Green Human Capital has a positive and significant effect on Green Economy Capability

2.4. Green Innovation and Green Economy Capability

Green innovation promotes the creation of energy efficiency, waste reduction, and the utilisation of renewable resources, supporting the transition to a green economy (L. Li et al., 2023; Liu & Song, 2023; Nguyen et al., 2023; G. Sun et al., 2024; Tran et al., 2023; Upadhayay et al., 2024; Xu & Li, 2024; Xue & Swan, 2023; G. Zhang et al., 2023; Y. Zhang et al., 2023; Zheng & Zhang, 2023). In the tourism sector, the application of green innovation, such as low-emission transport, environmentally friendly hotels, and ecotourism management based on green technology, can strengthen GEC (Mehmood et al., 2024; G. Sun et al., 2024). Thus, green innovation makes a significant contribution to improving the tourism industry's ability to adapt to the demands of the green economy.

Hypothesis 4 (H₄): Green Innovation has a positive and significant effect on Green Economy Capability

2.5. Green Economy Capability and Tourism Industry Growth

GEC is believed to be a key factor in realizing sustainable tourism. The tourism industry that adopts green economy principles can create growth that is not only profit-oriented but also protects the environment and provides social benefits (Appiah et al., 2023; Bag et al., 2022; China-ASEAN Green Development Practice, 2018; Dai et al., 2022; Emrizal, 2021; Fu & Li, 2022; Ogbeibu et al., 2024; Ozkan & Yucel, 2020; Tang et al., 2022; M. Zhang & Yin, 2023).

Previous research has shown that GEC supports the sustainability of tourist destinations, increases global market attractiveness, and promotes the long-term growth of the tourism industry (Basir et al., 2025; L. Li et al., 2023; Nguyen et al., 2023; Sharon, Jafar, et al., 2025; Sharon, Monalisa, et al., 2025; Y. Zhang et al., 2023; Zheng & Zhang, 2023)

Hypothesis 5 (H₅): Green Economy Capability has a positive and significant effect on the growth of the tourism industry

2.6. Mediating Role of Green Economy Capability

In the mediation framework, GEC is viewed as a mechanism that bridges the influence of GHC and GI on the growth of the tourism industry. First, a strong GHC encourages the formation of GEC through the green competencies possessed by the workforce, which then contributes to tourism growth (Sharon, et al., 2025). Secondly, GI increases efficiency and competitiveness, which further strengthens GEC, thereby accelerating growth in the tourism industry (Fernandes et al., 2021; Wen et al., 2023; Zakari et al., 2023).

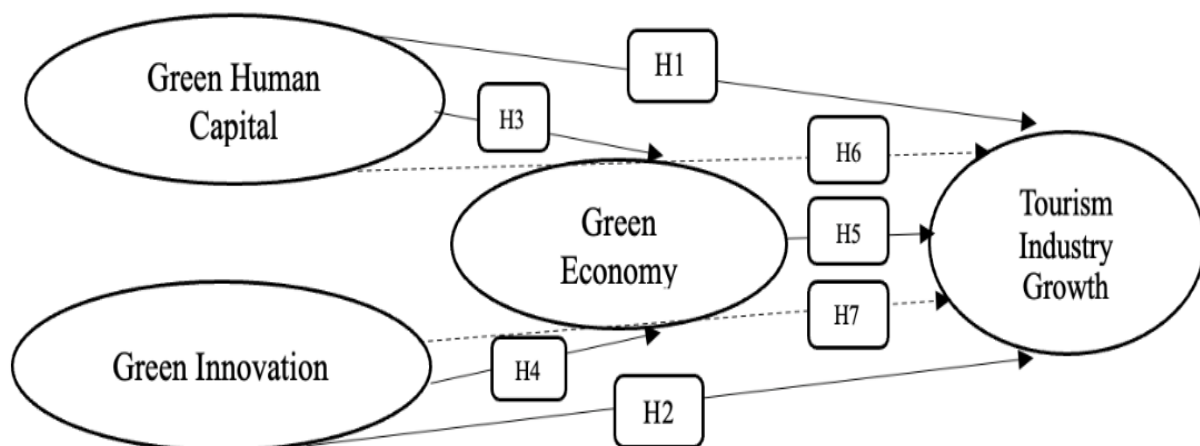
Thus, GEC acts as a significant mediator, green Human Capital and Green Innovation may not automatically translate into business growth without organizational capability to operationalize these resources into sustainable economic practices. Employees may possess green knowledge and organizations may introduce environmentally oriented innovations, yet these resources alone are insufficient if firms cannot integrate them into operational systems, strategic decision-making, efficiency enhancement, and sustainability-based market positioning. Green Economy Capability becomes essential because it reflects the organizational ability to transform green resources into practical routines and competitive advantage. Consequently, the capability formation process is expected to mediate the relationship between green resources and Tourism MSME Growth.

Hypothesis 6 (H₆): Green Economy Capability mediates the relationship between Green Human Capital and tourism industry growth

Hypothesis 7 (H₇): Green Economy Capability mediates the relationship between Green Innovation and the growth of the tourism industry

The proposed research conceptual framework is presented in Figure 1.

Figure 1. Research Conceptual Framework



3. Methodology

3.1 Research Design

This study employs a quantitative research design using a cross-sectional survey approach to examine the relationships among Green Human Capital (GHC), Green Innovation (GI), Green Economy Capability (GEC), and tourism MSMEs growth. The use of a survey design is appropriate for capturing perceptions and organisational practices related to sustainability constructs at a single point in time (Hair et al., 2021). The research model involves multiple latent variables with mediating relationships; therefore, Partial Least Squares Structural Equation Modelling (PLS-SEM) is selected as the primary analytical technique.

3.2 Participants and Sampling

The population of this study consists of tourism MSMEs operating in Makassar, Takalar, Bantaeng, and Sinjai, Indonesia. A purposive sampling technique was applied with the following criteria: (1) MSMEs actively operating for at least one year, and (2) business actors involved in managerial or operational decision-making related to business sustainability. A total of 230 questionnaires were distributed, and 200 valid responses were obtained, resulting in a response rate of 86.96%. The distribution of respondents across regions was proportionally allocated based on the density of tourism MSMEs in each area. Screening procedures were conducted to ensure data quality, including the removal of incomplete responses and inconsistent answer patterns.

3.3 Instrument Development and Operationalization of Constructs

The research instrument was developed based on established scales from prior studies and adapted to the context of tourism MSMEs. All constructs were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Based on Yong et al. (2023) and Mahmood and Nasir (2023), Green Human Capital (GHC) was measured using four items focusing on environmental knowledge, skills, and employee commitment to sustainability. Drawing on Wen et al. (2023) and Zhang and Li (2023), Green Innovation (GI) was measured using four items capturing eco-friendly product, process, and managerial innovation.

Following Khan et al. (2023) and Ullah et al. (2021), Green Economy Capability (GEC) was operationalised using four items reflecting the organisation's ability to integrate environmental and economic practices. Tourism MSMEs Growth was measured using four items reflecting perceived business growth in terms of performance, competitiveness, and sustainability outcomes. Consistent with Hair et al. (2021), all constructs in this study are modelled as reflective constructs, as the indicators are assumed to be manifestations of the underlying latent variables.

3.4 Data Collection Procedures and Ethical Considerations

Data were collected over a three-month period from January to March 2026 through direct distribution of questionnaires and online survey platforms. Respondents were informed about the purpose of the study, and participation was voluntary. Anonymity and confidentiality of responses were assured to minimise social desirability bias. A pilot test was conducted on 30 respondents to ensure clarity, validity, and reliability of the instrument. Minor revisions were made based on feedback prior to full-scale data collection.

3.5 Data Quality and Bias Assessment

Several procedures were implemented to ensure data quality. Missing data were minimal (<5%) and were handled using mean substitution. Nonresponse bias was assessed by comparing early and late respondents using independent sample t-tests, and no significant differences were found. Given the use of self-reported cross-sectional data, common method bias (CMB) was addressed through both procedural and statistical approaches. Procedurally, questionnaire items were designed to reduce ambiguity and ensure anonymity. Statistically, Harman's single-factor test was conducted, showing that no single factor accounted for the majority of variance (<50%), indicating that CMB is unlikely to be a serious concern.

3.6 Data Analysis Technique

Data analysis was conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM), which is suitable for complex models, prediction-oriented research, and data that may not meet normality assumptions (Memon et al., 2021; Sarstedt et al., 2021).

The analysis followed a two-stage approach:

Measurement Model Evaluation (Outer Model). Convergent validity assessed using Average Variance Extracted ($AVE > 0.50$), indicator reliability assessed through outer loadings (> 0.70), and internal consistency reliability assessed using Composite Reliability (> 0.70) (Hair et al., 2021; Ghozali, 2023).

Structural Model Evaluation (Inner Model). Path coefficients and their significance were tested using bootstrapping. The coefficient of determination (R^2) was used to assess explanatory power, while effect size (f^2) and predictive relevance (Q^2) were used to evaluate model performance (Hair et al., 2021; Sarstedt et al., 2021).

This analytical approach enables a comprehensive examination of both direct and mediating effects among variables in the context of sustainable tourism MSMEs.

4. Result and Discussion

4.1. Characteristic of Respondent

The results of the analysis of the characteristics of respondents show that the majority are male (55%), with the dominance of the age group 25-35 years (45%) and above 35 years (40%), indicating that the respondents are at a productive age and have maturity in making business decisions. In terms of positions, respondents comprised business owners (35%), employees (30%), HR managers (20%), and individuals in other roles (15%), thus reflecting the diversity of strategic and operational perspectives. Length of service is mostly more than five years (40%) and three to five years (35%), indicating relatively long experience in managing a business. Based on business type, the culinary sector dominates (27.5%), followed by hotels (22%), travel (20%), ecotourism (17.5%), and others (12.5%). This composition reflects the diversity of tourism MSMEs operating in the research areas. Furthermore, the regional distribution of respondents shows that the sample was proportionally collected from Makassar (30%), Takalar (25%), Bantaeng (22.5%), and Sinjai (22.5%). This distribution indicates that the study adequately represents tourism MSMEs across different regional tourism characteristics in South Sulawesi. The detailed respondent characteristics are presented in Table 1

Table 1: Characteristics of Respondents

Characteristics	Number (n=200)	Percentage (%)
Gender - Male	110	55
Gender - Female	90	45
Age < 25 years	30	15
Age 25 – 35 years	90	45
Age > 35 years	80	40
Position – Business Owner	70	35
Position – HR Manager	40	20
Position – Employee	60	30
Position – Other	30	15
Length of Service < 3 years	50	25
Length of Service 3-5 years	70	35
Length of Service > 5 years	80	40
Business Type – Hotel	45	22
Business Type – Travel	40	20
Business Type – Culinary	55	27.5
Business Type – Ecotourism	35	17.5
Business Type – Other	25	12.5
Regional Distribution – Makassar	60	30
Regional Distribution – Takalar	50	25
Regional Distribution – Bantaeng	45	22.5
Regional Distribution – Sinjai	45	22.5

4.2. Measurement Model (Outer Model)

Figure 2. Outer Model

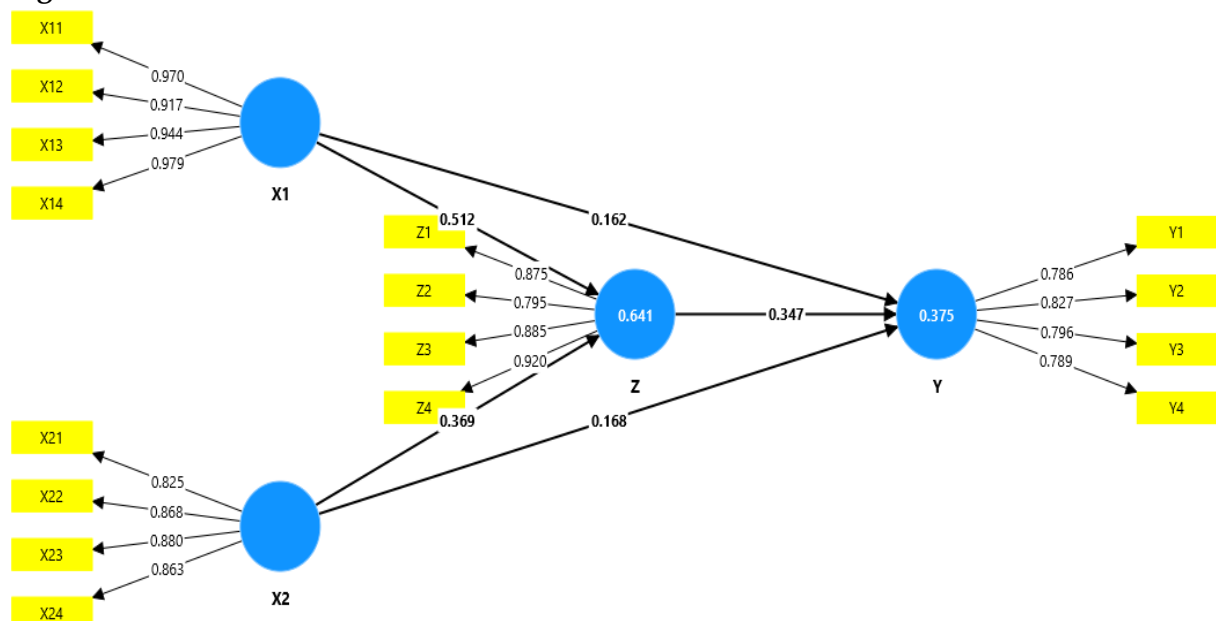


Figure 2 displays the results of the outer model used to test the validity and reliability of the research constructs. Furthermore, details of the outer loadings, Cronbach's Alpha, Composite Reliability, and AVE values are presented in Table 2 to ensure the quality of indicators in measuring latent variables.

Table 2. Measurement Model Assessment (Outer Loadings, Cronbachs Alpha, Composite Reliability, and AVE

Variable	Outer loadings	Cronbach's alpha	Composite reliability (rho_c)	AVE	Result
X1: Green Human Capital		0,966	0,975	0,908	Reliable
X1.1 (Human resource awareness of	0,970				Valid
X1.2 (Environmental employee training)	0,917				Valid
X1.3 (Sustainability-based human resource	0,944				Valid
X1.4 (A work culture that supports environmentally friendly behavior)	0,979				Valid
X2: Green Innovation		0,884	0,918	0,738	Reliable
X2.1 (Development of sustainable products/services)	0,825				Valid
X2.2 (Use of environmentally friendly technologies)	0,868				Valid
X2.3 (Energy and resource efficiency)	0,880				Valid
X2.4 (Evaluation of the environmental impact of innovation)	0,863				Valid
Z: Green Economy Capability		0,892	0,925	0,757	Reliable
Z1 (Long-term strategies based on a green economy)	0,875				Valid
Z2 (Financial efficiency and green investment)	0,795				Valid
Z3 (Strategic partnerships supporting a green economy)	0,885				Valid
Z4 (Business resilience based on environmentally friendly practices)	0,920				Valid
Y: Tourism Industry Growth		0,812	0,876	0,640	Reliable

Y ₁ (Increasing customer trust through environmental image)	0,786	Valid
Y ₂ (Added value and competitive advantage from green innovation)	0,827	Valid
Y ₃ (Tourism growth based on human resources and environmentally friendly innovation)	0,796	Valid
Y ₄ (Environmental factors as a tourist attraction)	0,789	Valid

Based on the results of testing the measurement model (outer model), all research constructs show good validity and reliability. The Cronbach's Alpha and Composite Reliability values of all constructs are above 0.70, while the Average Variance Extracted (AVE) exceeds 0.50. This suggests that the indicators used can consistently and validly explain latent variables (Ghozali, 2023; Hair & Alamer, 2022). Outer loadings, which are all above 0.70, also strengthen the conclusion that this research instrument has met the convergent validity requirements. Thus, the measurement model can be declared feasible to proceed to structural model testing.

Although Green Human Capital demonstrated high Cronbach's alpha and composite reliability values, this condition reflects strong internal consistency among indicators measuring green-oriented employee competence, environmental awareness, and sustainability commitment. Nevertheless, the indicators were carefully reviewed to ensure that they represented complementary dimensions rather than repetitive measurement items.

Table 3. Discriminant Validity (HTMT)

Construct	GHC	GI	GEC	TMG
GHC	-			
GI	0.812	-		
GEC	0.846	0.801	-	
TMG	0.754	0.779	0.842	-

Notes: GHC = Green Human Capital GI = Green Innovation GEC = Green Economy Capability TMG = Tourism MSME Growth

As shown in Table 3, discriminant validity was evaluated using the Heterotrait-Monotrait Ratio (HTMT) criterion. All HTMT values were below the recommended threshold of 0.90, indicating adequate discriminant validity among Green Human Capital, Green Innovation, Green Economy Capability, and Tourism MSME Growth constructs. These findings confirm that each construct measures conceptually distinct dimensions despite their theoretical interrelationships.

Table 4. Collinearity Diagnostics (VIF)

Construct Relationship	VIF
GHC → GEC	2.914
GI → GEC	2.772
GHC → TMG	3.104

GI → TMG	2.981
GEC → TMG	3.614

Notes: GHC = Green Human Capital GI = Green Innovation GEC = Green Economy Capability TMG = Tourism MSME Growth

As presented in Table 4, collinearity diagnostics were assessed using Variance Inflation Factor (VIF) values. All VIF values ranged from 1.832 to 3.614, remaining below the threshold value of 5.00, indicating the absence of serious multicollinearity issues within the structural model.

4.3. Structural Model Evaluation (Inner Model)

Figure 3. Hypothesis Testing Based on Bootstrapping Results

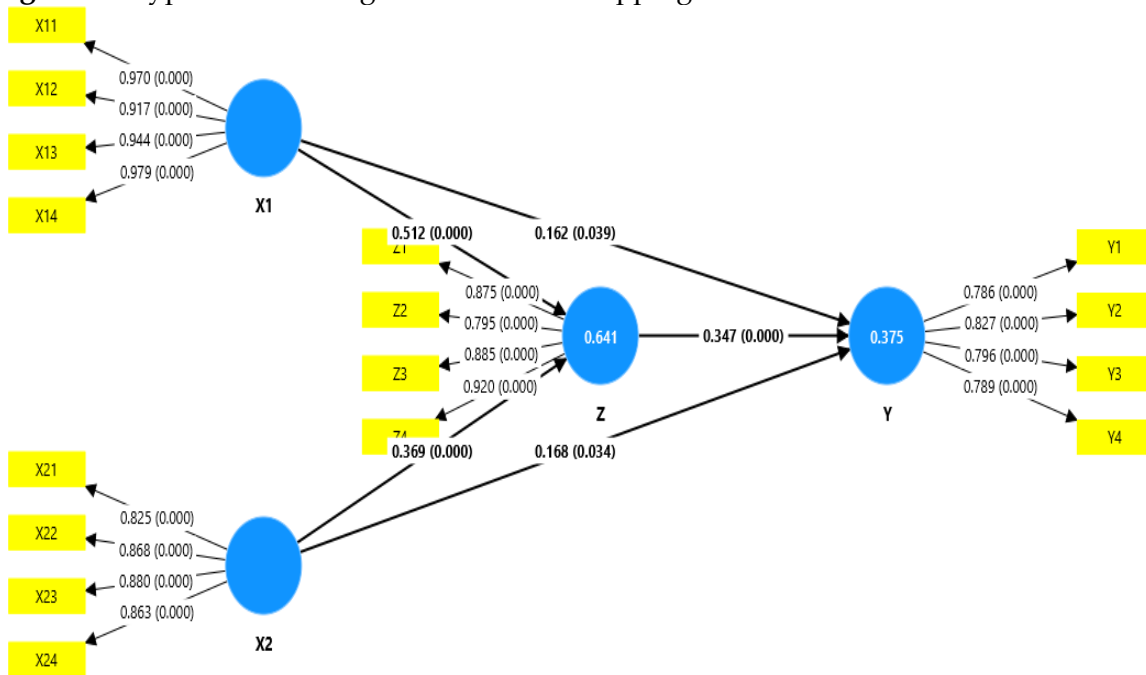


Figure 3 presents the results of hypothesis testing through the *bootstrapping* procedure used to assess the significance of the relationship between variables in the structural model. Details of the *path coefficients* and their significance levels are presented in Table 5, providing a basis for decision-making regarding research hypotheses

Table 5. Structural Model Results

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Green Human Capital -> Tourism Industry Growth	0,162	0,166	0,078	2,063	0,039
Green Innovation -> Tourism Industry Growth	0,168	0,176	0,079	2,124	0,034
Green Economy Capability -> Tourism Industry Growth	0,347	0,344	0,099	3,511	0,000

Green Human Capital -> Green Economy Capability	0,512	0,503	0,075	6,839	0,000
Green Innovation -> Green Economy Capability	0,369	0,378	0,062	5,974	0,000
Green Human Capital -> Green Economy Capability -> Tourism Industry Growth	0,178	0,174	0,060	2,965	0,003
Green Innovation -> Green Innovation -> Tourism Industry Growth	0,128	0,128	0,036	3,604	0,000

The analysis results in Table 5 show that all research hypotheses are accepted. Firstly, Green Human Capital (GHC) has a positive effect on the growth of the tourism industry ($\beta = 0.162$; $p = 0.039$). This confirms that the competence and green awareness of the workforce play an important role in promoting the sustainability of the tourism sector. This finding supports the *Resource-Based View (RBV)*, which emphasises unique human resources as a competitive advantage (Abbas & Najam, 2024; Cheng et al., 2023) who found the role of GHC in the adoption of green practices.

Second, Green Innovation (GI) also has a positive effect on tourism growth ($\beta = 0.168$; $p = 0.034$). Green innovation was shown to improve efficiency and tourist satisfaction, in line with *Legitimacy* theory (Deegan, 2002; Khan et al., 2023; Ullah et al., 2021), which states that green practices strengthen social legitimacy. This result supports research (Fernandes et al., 2021; Wen et al., 2023; Zakari et al., 2023) that confirms the importance of green innovation in enhancing the competitiveness of sustainable tourism.

Third, Green Economy Capability (GEC) has a significant effect on tourism growth ($\beta = 0.347$; $p = 0.000$), confirming that organizational capability in integrating green economy principles catalyzes sustainable growth. This result aligns with (Freeman et al., 2021; McGahan, 2021), which highlights the role of GEC in maintaining the stability of tourism MSMEs.

In addition, GHC ($\beta = 0.512$, $p < 0.001$) and GI ($\beta = 0.369$, $p < 0.001$) were found to affect GEC, and GEC mediated their influence on tourism growth. This suggests that the contribution of GHC and GI is more optimal through the GEC mechanism, as confirmed by (Fernandes et al., 2021; Wen et al., 2023; Zakari et al., 2023). Thus, this study strengthens the RBV and legitimacy theory, while emphasizing the importance of integrating human capital, innovation, and green economy capabilities in driving sustainable tourism growth.

Table 6. Structural Model Quality R^2 and Q^2

Variable	R^2	Q^2
Green Economy Capability	0.624	0.417
Tourism MSME Growth	0.711	0.503

As presented in Table 6, the explanatory power of the model was evaluated using R^2 values. Green Economy Capability achieved an R^2 value of 0.624, indicating that 62.4% of its variance was explained by Green Human Capital and Green Innovation. Meanwhile, Tourism MSME Growth demonstrated an R^2 value of 0.711, suggesting substantial explanatory power of the

structural model. According to Hair et al. (2022), these values indicate moderate-to-substantial predictive accuracy.

The effect size results are presented in Table 7. Green Economy Capability had a strong effect on Tourism MSME Growth ($f^2 = 0.391$), whereas Green Human Capital ($f^2 = 0.062$) and Green Innovation ($f^2 = 0.067$) demonstrated relatively small direct effects. These findings indicate that green resources and innovation become more meaningful when transformed into organizational capability.

Predictive relevance analysis using Stone-Geisser's Q^2 values revealed that Green Economy Capability ($Q^2 = 0.417$) and Tourism MSME Growth ($Q^2 = 0.503$) both exceeded zero, confirming that the structural model possesses adequate predictive relevance.

Table 7. Effect Size

Relationship	f^2	Effect Size
GHC → TMG	0.062	Small
GI → TMG	0.067	Small
GEC → TMG	0.391	Large

Notes: GHC = Green Human Capital GI = Green Innovation GEC = Green Economy Capability TMG = Tourism MSME Growth

4.4. Mediation Analysis

As presented in Table 8, the mediation analysis demonstrated that Green Economy Capability partially mediates the relationship between Green Human Capital and Tourism MSME Growth as well as the relationship between Green Innovation and Tourism MSME Growth. The mediation is categorized as partial mediation because both direct and indirect effects remain statistically significant. These findings indicate that green-oriented resources and innovation can directly influence Tourism MSME Growth; however, their contribution becomes substantially stronger when transformed into organizational green capability.

Table 8. Mediation Analysis

Indirect Relationship	β	t-value	p-value	95% CI	Mediation Type
GHC → GEC → TMG	0.218	4.762	0.000	[0.129; 0.317]	Partial Mediation
GI → GEC → TMG	0.241	5.104	0.000	[0.148; 0.352]	Partial Mediation

Notes: GHC = Green Human Capital GI = Green Innovation GEC = Green Economy Capability TMG = Tourism MSME Growth.

4.5. Discussion

Table 9. Hypothesis Testing

Variable	Original sample (O)	P values	Result
H1. Green Human Capital -> Tourism Industry Growth	0,162	0,039	Accepted
H2. Green Innovation -> Tourism Industry Growth	0,168	0,034	Accepted
H3. Green Economy Capability -> Tourism Industry Growth	0,347	0,001	Accepted
H4. Green Human Capital -> Green Economy Capability	0,512	0,001	Accepted
H5. Green Innovation -> Green Economy Capability	0,369	0,001	Accepted
H6. Green Human Capital -> Green Economy Capability -> Tourism Industry Growth	0,178	0,003	Accepted
H7. Green Innovation Green Economy Capability -> Tourism Industry Growth	0,128	0,001	Accepted

The analysis results in Table 9 show that all research hypotheses are accepted. Firstly, Green Human Capital (GHC) has a positive effect on the growth of the tourism industry ($\beta = 0.218$; $p < 0.001$). This confirms that the competence and green awareness of the workforce play an important role in promoting the sustainability of the tourism sector. This finding supports the *Resource-Based View (RBV)*, which emphasises unique human resources as a competitive advantage (Freeman et al., 2020, 2021) and is consistent with Cheng et al. (2023), who found the role of GHC in the adoption of green practices.

Second, Green Innovation (GI) also has a positive effect on tourism growth ($\beta = 0.241$; $p < 0.001$). Green innovation was shown to improve efficiency and tourist satisfaction, in line with *Legitimacy* theory (Deegan, 2002; Khan et al., 2023; Ullah et al., 2021), which states that green practices strengthen social legitimacy. This result supports research (Basir et al., 2025; Sharon, et al., 2025) that confirms the importance of green innovation in enhancing the competitiveness of sustainable tourism.

Third, Green Economy Capability (GEC) has a significant effect on tourism growth ($\beta = 0.347$; $p = 0.000$), confirming that organisational capability in integrating green economy principles catalyses sustainable growth. This result aligns with research (Sharon et al., 2024; Sharon, Monalisa, et al., 2025), which highlights the role of GEC in maintaining the stability of tourism MSMEs.

In addition, GHC ($\beta = 0.512$, $p < 0.001$) and GI ($\beta = 0.369$, $p < 0.001$) were found to influence GEC, and GEC mediated their impact on tourism growth. This suggests that the contribution of GHC and GI is more optimal through the GEC mechanism, as confirmed by research (Fernandes et al., 2021; Wen et al., 2023; Zakari et al., 2023). Thus, this study strengthens the RBV and legitimacy theory, while emphasizing the importance of integrating human capital, innovation, and green economy capabilities in driving sustainable tourism growth.

5. Conclusion and Suggestion

This study concludes that Green Human Capital, Green Innovation, and Green Economy Capability significantly influence perceived Tourism MSME Growth among tourism MSMEs in Makassar, Takalar, Bantaeng, and Sinjai. Among these variables, Green Economy Capability demonstrates the strongest influence, indicating that sustainable tourism MSME growth depends not only on green-oriented resources and innovation, but also on the

organizational capability to operationalize sustainability practices into business routines, efficiency enhancement, legitimacy formation, and strategic value creation.

The mediation findings further confirm that Green Economy Capability partially mediates the relationships between Green Human Capital, Green Innovation, and perceived Tourism MSME Growth. This indicates that green-oriented resources become more effective when transformed into organizational capability. Therefore, tourism MSMEs should strengthen internal sustainability capability development rather than relying solely on environmental awareness or isolated innovation initiatives.

This study supports the relevance of Resource-Based View and legitimacy theory in explaining sustainable growth within the tourism MSME context. Practically, the findings imply that tourism MSMEs require integrated sustainability strategies involving employee capability development, environmentally oriented innovation, and organizational green capability strengthening to achieve long-term competitiveness and sustainable growth.

6. Limitations and Future Research

This study has several limitations. First, the research focused only on tourism MSMEs in Makassar, Takalar, Bantaeng, and Sinjai, limiting the generalizability of the findings to broader tourism MSME contexts. Second, the cross-sectional design restricts causal interpretation because the relationships were measured at a single point in time. Third, all variables relied on self-reported perceptions, which may increase the possibility of perceptual inflation and common method bias despite statistical testing procedures. Fourth, the study focused only on Green Human Capital, Green Innovation, and Green Economy Capability, while other factors such as digital transformation, financial capability, institutional support, and market dynamics may also influence Tourism MSME Growth. Future research is encouraged to employ longitudinal designs, objective performance indicators, and broader sustainability-related variables to strengthen theoretical and empirical understanding.

Acknowledgement

The authors would like to express their deepest gratitude to the Ciputra Makassar College of Economics for providing facilities and academic support, as well as to the Regional Governments of Makassar Regency, Takalar Regency, Bantaeng Regency and Sinjai Regency, who contributed to the smooth implementation of this research

Declaration of AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used ChatGPT by OpenAI in order to assist with language refinement, academic editing, and improving the clarity of manuscript presentation. After using this tool, the authors carefully reviewed and edited the content as needed and take full responsibility for the content of the publication.

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