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How organic certification-driven brand assets influence tourist loyalty: an empirical study of organic agritourism in Hualien and Taitung, Taiwan, utilizing the RPM framework

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The toxin-free natural sustainable environment and health-oriented values of rural culture in organic agriculture are key factors shaping the unique competitiveness of organic agritourism brand equity. Based on the Reasonable Person Model (RPM), this research targeted tourists who participated in organic farming experiences between January 1 and March 30, 2024, employed a convenience sampling approach to collect data via the SurveyCake online platform, and ultimately obtained 350 valid responses. This study utilizes SPSS 21.0 and PLS-SEM as analytical tools for cross-sectional data analysis. Key findings include: (1) Brand image of environmental sustainability and health, perceived quality, and brand awareness are validated as influential factors linking organic farming/product certification to loyalty, with perceived quality demonstrating the strongest explanatory power. (2) Brand perceived quality acts as a mediator between image of environmental sustainability and health and both brand awareness and loyalty. (3) Brand awareness serves as a mediator connecting image of environmental sustainability and health and perceived quality to loyalty. (4) Brand image of environmental sustainability and health mediates the relationship between organic certification and perceived quality. (5) By treating organic farming and product certification as brand-specific assets, the model achieves high predictive power for loyalty, bridging a critical gap in brand equity research where brand assets are seldom incorporated. This expands the applicability of the RPM model in tourism brand equity studies while providing a theoretical foundation for enhancing organic agritourism competitiveness. The study makes significant theoretical and methodological innovations and offers both academic and practical contributions.

KEYWORDS

reasonable person model (RPM), agricultural tourism, brand equity, organic agricultural products, organic agritourism brand assets

1 Introduction

Facing competitive pressures from Taiwan's industrial and service sectors, the agricultural sector has seen government-led promotion of agritourism to generate new rural value (Chassang et al., 2024). This strategy aims to retain younger generations in rural areas, diversify farmers' income streams (Dat et al., 2024), revitalize rural communities, and advance sustainable agricultural development (Shen and Wang, 2023). Furthermore, by offering tourists opportunities to engage in rural experiences, it enhances public environmental awareness, thereby fostering the conservation of agricultural resources and natural ecosystems (Shen et al., 2022b). However, organic agritourism, central to a differentiation strategy, encounters a significant challenge. While the area dedicated to organic farming in Taiwan surged by 206% from 2015 to 2022 (Lin and Organic Agriculture Promotion Center, 2024), with areas such as Hualien and Taitung capitalizing on organic ecosystems to develop slow-living tourism, insufficient certification systems have eroded consumer trust. This makes it hard to convert the "organic" brand value into a market edge. This Brand Asset-Equity Gap stands as the primary obstacle to sustainable growth.

The regions of Hualien and Taitung in Taiwan have successfully established differentiated tourism brands through their organic farming landscapes, ecological integrity, and slow-living aesthetics—a success closely tied to their effective cultivation of brand equity and initial accumulation of tourist loyalty (Shen et al., 2022b). Research has explicitly demonstrated that building positive brand equity (encompassing awareness, loyalty, perceived quality, and image) not only enhances competitive differentiation but also significantly boosts visitor willingness to participate and revisit (Zhang et al., 2021). However, organic agriculture as the foundation of such tourism faces multiple challenges: inadequate verification systems leading to consumer trust deficits, climatic and land constraints, high production costs, certification standards that neglect consumer needs, and low participation rates (Taiwan Organic Information Portal, 2018). Consequently, strengthening organic certification systems (to solidify brand asset authenticity) and fostering public recognition (to enhance brand equity and loyalty) emerge as both critical factors for establishing sustainable brand value and central issues for the long-term development of organic agritourism.

Aaker (1991) proposed five dimensions of brand equity: awareness, loyalty, perceived quality, associations/image, and brand assets. Keller (1993) introduced Customer-Based Brand Equity (CBBE) as a framework for measuring brand equity from the consumer perspective. Subsequent studies (Cambra-Fierro et al., 2021; Cervova and Vavrova, 2021; Chi et al., 2020; Kim et al., 2018; Kusumaningrum, 2021; Qiu et al., 2024; Shafaei, 2017) have predominantly adopted four of Aaker's dimensions—awareness, loyalty, perceived quality, and image—as foundational CBBE metrics, while largely excluding brand assets from their analytical frameworks. The critical distinction between organic agritourism and conventional agritourism resides in organic certification systems. These systems not only validate the environmental sustainability of organic practices and the health attributes of organic products but also function as a core brand asset—one

that builds consumer trust and recognition, thereby laying the groundwork for long-term loyalty. This study uniquely positions organic certification and tourist recognition of organic practices as distinctive brand assets in organic agritourism, and further examines their direct and indirect impact on brand loyalty—while verifying the mediating effects of brand image (a carrier of emotional value), perceived quality (a guarantee of practical value), and awareness (a prerequisite for value perception).

The Rational Person Model (RPM), proposed by Kaplan and Kaplan (2009), examines the relationship between external environmental factors and human behavior, with particular emphasis on how the fulfillment of information needs influences rational decision-making mechanisms. This theoretical framework comprises three critical phases: (1) Model Building—involving information acquisition and processing; (2) Effectiveness—encompassing cognitive and affective responses; and (3) Meaningful Action—pertaining to the formation of behavioral intentions. In tourism research, RPM has been successfully implemented to analyze tourist behavior patterns.

Building upon the RPM framework, this study innovatively incorporates organic agriculture certification systems into the Model Building phase. Specifically, in the Model Building phase, Brand Assets of Certification and Identification (BACI) is selected as the core variable, given its capacity to systematically provide environmental sustainability information that satisfies tourists' cognitive needs regarding food safety and ecological conservation (Kaplan and Kaplan, 2009). The Effectiveness phase focuses on three dimensions: brand Image of Health and Sustainability (BIHS), Brand Perceived Quality (BPQ), and Brand Awareness (BAW), which collectively reflect tourists' psychological internalization of organic values (Kaplan and Kaplan, 2011). The Meaningful Action phase employs Brand Loyalty (BLO) as the ultimate outcome variable to measure revisit intention and willingness to recommend (Kim et al., 2018). This theoretical framework not only extends the conventional application of RPM in tourism research but also, through the introduction of the brand equity perspective, establishes a complete explanatory chain of "information supply (certification assets)—cognitive evaluation (brand image/quality/awareness, i.e., equity)—behavioral feedback (loyalty)". Such theoretical integration not only remedies the deficiency in conventional research that overlooked brand-specific assets (e.g., organic certification) but also empirically demonstrates how organic certification creates competitive advantages through the "trust (in assets)—identification (of equity)—loyalty (in behavior)" transmission mechanism—providing a critical theoretical basis for resolving the brand asset-equity-loyalty gap in organic agritourism.

This study aims to enhance the brand loyalty of organic agritourism by leveraging the unique brand assets of organic agriculture certification and public recognition, and to explore the important influence paths of these two factors on brand loyalty. Its core research questions include two aspects: first, integrating Aaker's (1991) Brand Equity Model and the Reasonable Person Model to construct an influence relationship model among organic agriculture certification, public recognition and brand loyalty, and analyzing the impact of the first two factors on the brand loyalty of organic agritourism; second, verifying the mediating roles of

Brand Image of Health and Sustainability (BIHS), Brand Perceived Quality (BPQ) and Brand Awareness (BAW), so as to further explore the key influence paths of organic agriculture certification and public recognition on brand loyalty.

2 Literature review

2.1 Reasonable person model(RPM)

The Reasonable Person Model (RPM) establishes connections between external environmental factors and human behavior by examining elements that satisfy information needs while considering factors that motivate subsequent rational actions (Kaplan and Kaplan, 2009). This model consists of three primary phases: model building, effectiveness, and meaningful action. previous research has applied the rpm framework to tourist behavior analysis with significant adaptations:

Lee (2023) developed an RPM model for heritage tourism, proposing that charismatic environments enhance visitor health and wellbeing. In this adaptation, destination charisma serves as the Model Building component, wellbeing represents Effectiveness, and behavioral intention constitutes Meaningful Action. Similarly, Wang et al. (2020) constructed an RPM framework using destination charisma for Model Building, place attachment and wellbeing for Effectiveness, and loyalty as Meaningful Action. In the context of organic agritourism, Shen and Wang (2023) created an RPM model featuring destination charisma (Model Building), place attachment and pro-environmental behavior (Effectiveness), with loyalty behavior as the outcome measure.

Building upon these foundational studies, the current research develops an RPM model of brand equity for organic agritourism, specifically analyzing how organic agriculture and product certification influence tourist loyalty. The proposed model structure is as follows:

- **Model Building:** when individuals' information needs are adequately fulfilled, their behavioral responses demonstrate enhanced rationality (Kaplan and Kaplan, 2009; Lee, 2023; Wang et al., 2020). Organic agriculture and product certification systems serve as critical mechanisms that ensure organic agritourism destinations provide verifiable sustainability information regarding chemical-free production, health-promoting attributes, and environmental friendliness. These certification schemes significantly strengthen tourist confidence in and identification with organic agricultural practices, thereby fostering greater support for organic farming development. Consequently, this study operationalizes organic agriculture and product certification as the foundational Model Building component within the theoretical framework.
- **Effectiveness:** through processing and internalizing environmental information, individuals develop enhanced self-efficacy and situational awareness that empower actionable problem-solving capacities (Kaplan and Kaplan, 2011; Lee, 2023; Wang et al., 2020). As tourists' confidence in and identification with organic agriculture intensifies, this cognitive-affective process: (a) reinforces perceptions

of the sector's sustainable health attributes, (b) deepens experiential appreciation of organic agricultural products' quality, and (c) elevates brand salience. This tripartite reinforcement mechanism ultimately motivates stronger behavioral support for organic agricultural development. Accordingly, the study operationalizes effectiveness through three measurable dimensions: brand Image of Health and Sustainability (BIHS), Brand Perceived Quality (BPQ), and Brand Awareness (BAW).

- **Meaningful Action:** when people believe they can take useful actions, such actions will be hopeful and strive toward goals (Kaplan, 2000; Kaplan and Kaplan, 2009; Lee, 2023; Wang et al., 2020). When tourists perceive the sustainable health image, perceived quality, and awareness of organic agriculture, they consider visiting organic farms as meaningful behavior for environmental protection and promoting physical and mental health. Therefore, this study uses loyalty as meaningful behavior.

2.2 Brand equity

A brand constitutes a cognitive and associative ensemble that consumers form about a specific enterprise or product. Drawing upon the definitions proposed by Aaker (1991) and Keller (1993), brand equity (BE) reflects how brand knowledge elicits differential consumer responses to marketing activities. Keller (1993) particularly emphasizes understanding brand equity from a consumer behavior perspective, positing that customer-based brand equity (CBBE) emerges when customers develop "favorable, strong, and unique" brand associations. In tourism contexts, CBBE materializes when visitors establish profound cognitive understanding and form positive mental representations of destinations (Cruz-Milán, 2023; Nguyen et al., 2023). The studies demonstrate that destination brand equity significantly enhances travel intention (Zhang et al., 2021) and strengthens visitor attraction (Zhang et al., 2020).

This study conceptualizes organic agritourism certification systems as pivotal institutional mechanisms that foster tourist trust and value co-creation by guaranteeing sustainable environmental practices and organic product quality. These certification schemes constitute institutional brand assets that serve not merely as sources of competitive differentiation, but as fundamental components of customer-based brand equity (CBBE). Building upon Aaker (1991) brand equity framework, this study proposes a five-dimensional model for organic agritourism brand equity:

2.2.1 Brand assets of certification and identification (BACI)

This study defines the brand asset of organic agritourism as an institutional proprietary asset (Aaker, 1991). Compared with conventional agritourism, organic agritourism possesses dual advantages: it not only promotes rural economic development but also achieves sustainable ecological conservation (Chassang et al., 2024; Wang et al., 2020), while its organic products better satisfy modern consumers' pursuit of healthy lifestyles (Shen

et al., 2020). The realization of this differentiated value hinges on the institutional trust system established by organic certification systems, along with operators' management capabilities. Therefore, this study adopts Brand Assets of Certification and Identification (BACI) as the brand asset of organic agritourism, referencing Liu (2020) and Wang and Shen (2024b) to measure BACI based on: (1) trust in organic product certification, (2) operators' operational management capabilities in organic agriculture, (3) identification with organic agriculture, and (4) the uniqueness of organic agriculture.

2.2.2 Brand image of health and sustainability (BIHS)

Brand Image is constituted by consumers' perceived value, emotional connections, and personality traits associated with a product (Aaker, 1991; Kim and Lee, 2022; Kim et al., 2018; Qiu et al., 2024), serving as a critical component of Customer-Based Brand Equity (CBBE) for tourism destinations (Majeed et al., 2024; Saeed and Shafique, 2020). Organic agritourism, characterized by its organic farming practices, chemical-free environment, and sustainable development philosophy (Shen et al., 2020), not only enhances visitors' environmental awareness but also strengthens their pro-environmental behavioral intentions (Chassang et al., 2024; Shen et al., 2022b). Furthermore, organic agritourism offers distinctive features including natural landscapes, pastoral scenery, rural environments, and slow-living rhythms, which facilitate stress relief and deliver psychological relaxation and physiological health benefits (Chassang et al., 2024; Shen and Wang, 2023). Its organic agricultural products additionally fulfill tourists' demands for food safety and health (Shen et al., 2022b). Based on this theoretical foundation, the current study conceptualizes "brand image of health and sustainability" as the core brand image construct for organic agritourism. Following the measurement frameworks established by Liu (2020) and Wang and Shen (2024b), we operationalize this construct through three validated dimensions: promotion of environmentally sustainable development, possession of a health-oriented tourism image, and suitability for organic agricultural practices.

The organic agriculture and product certification system ensures the quality of both the organic farming environment and its products, thereby enhancing tourists' trust in these offerings. As established by Kim et al. (2018), such trust significantly influences brand image formation. Furthermore, tourists' trust in and identification with organic agricultural certification systems directly contribute to the development of a health and sustainability brand image. Based on this theoretical rationale, the study proposes the following research hypothesis:

- **H₁:** Brand assets of certification and identification has a significant positive impact on brand image of health and sustainability.

2.2.3 Brand perceived quality (BPQ)

Perceived Quality refers to consumers' subjective evaluation of the overall superiority of organic agritourism products and services (Aaker, 1991; Bui, 2023; Kim et al., 2018). This judgment not only provides tourists with decision-making basis for brand

selection (Hu et al., 2024) but also serves as a core element of destination differentiation. Through offering natural tranquil environments that alleviate urban stress (Shen et al., 2022a) and unique experiences of autonomous participation in rural life and production activities (Shen and Wang, 2023), organic agritourism shapes its perceived quality across four dimensions: service quality (e.g., professional guiding and hospitality), facility quality (e.g., eco-friendly accommodations and leisure spaces), experience quality (e.g., farming participation and ecological education), and product quality (e.g., organic agricultural products and processed goods). This study adopts the measurement framework from Liu (2020) and Wang and Shen (2024b), using quality service provision, complete facility quality, organic agricultural experience and quality, and organic agricultural product quality as the basis for assessing perceived quality.

The implementation of organic agriculture and product certification systems not only promotes the sustainable development of chemical-free and eco-friendly environments but also significantly enhances tourists' experience quality. By rigorously controlling production standards for organic agricultural products, these certification systems ensure product safety and health benefits while effectively meeting tourists' demand for high-quality agricultural products, thereby strengthening their trust and identification with organic agritourism (Shen et al., 2022a). Empirical studies demonstrate a significant positive correlation between this trust relationship and perceived quality (Kim et al., 2018). Consequently, tourists' trust in and identification with organic certification systems directly and positively influence their perceived quality evaluations, leading to the following research hypothesis:

- **H₂:** Brand assets of certification and identification has a significant positive impact on brand perceived quality.

Organic agritourism, characterized by its organic, chemical-free, and sustainable environmental features, not only establishes fundamental conditions for organic agricultural production but also provides visitors with distinctive health-oriented tourism experiences encompassing natural landscapes, pastoral scenery, and slow-living rural lifestyles (Wang and Shen, 2024a). This unique tourism model successfully cultivates a brand image of health and sustainability, which effectively enhances tourists' perceived quality of both organic agritourism experiences and related products. Empirical studies have demonstrated a significant positive correlation between brand image and perceived quality (Kim et al., 2018), a finding further validated by Bańbuła (2024) research on customer-based brand equity in amateur sports clubs, which confirmed the positive relationship between brand image and perceived quality. Based on this theoretical foundation, the study proposes the following hypothesis:

- **H₃:** Brand image of health and sustainability has a significant positive impact on brand perceived quality.

2.2.4 Brand awareness (BAW)

Brand Awareness (BAW), a fundamental dimension of brand equity, represents the degree of prominence and recognition

a brand achieves in consumers' memory (Aaker, 1991; Kim et al., 2018). Within tourism research, this construct specifically reflects potential visitors' ability to recognize and recall destination brands (Bui, 2023), with substantial empirical evidence confirming its pivotal role in influencing travel decisions and destination choices (Chi et al., 2020; Kim and Lee, 2022; Qiu et al., 2024). Organic agritourism, as an innovative integration of agricultural and tourism industries, enhances brand awareness through three distinctive memory-reinforcing attributes: its environmental sustainability features, the health benefits of organic products, and unique experiential offerings. These elements collectively improve cognitive accessibility and memory retrieval efficiency (Liu, 2020), thereby effectively facilitating brand awareness formation. Building on this theoretical foundation and following the measurement frameworks established by Liu (2020) and Wang and Shen (2024b), this study develops a three-dimensional brand awareness measurement system encompassing organic agricultural practices, organic product attributes, and organic tourism experiences.

Environmental sustainability and health values constitute the key differentiators between organic agritourism and conventional tourism. By integrating these values into tourism experiences, organic agritourism creates memorable and positive impressions for visitors (Wang and Shen, 2024a), thereby enhancing destination awareness. This demonstrates that brand image of health and sustainability positively influences brand awareness in organic agritourism. Therefore, the study proposes the following research hypothesis:

- **H₄:** Brand image of health and sustainability has a significant positive impact on brand awareness.

Organic agritourism effectively enhances tourists' perceived quality through its unique chemical-free environment, offering slow-living rural experiences that alleviate urban stress while meeting visitors' demand for healthy and safe agricultural products (Shen et al., 2022b). Simultaneously, its distinctive environment, experiential activities, and organic produce create memorable impressions in visitors' minds (Wang and Shen, 2024a). This perspective is empirically supported by Kim et al. (2018) study on literary festivals, which demonstrated a strong positive correlation between perceived quality and brand awareness. Accordingly, this study proposes Hypothesis H₅:

- **H₅:** Brand perceived quality has a significant positive impact on brand awareness.

2.2.5 Brand loyalty (BLO)

In the field of tourism research, brand loyalty (BLO) is generally defined by two key dimensions: revisit intention and recommendation intention (Kim et al., 2018; Qiu et al., 2024). Organic agritourism consists of organic agriculture, organic agricultural products, and tourism experiences as its main components (Liu, 2020). Organic agritourism should include these elements, so this study will refer to Liu (2020) and Wang and Shen (2024b) in using loyalty toward organic agriculture,

organic agricultural products, and organic tourism as the basis for measuring loyalty.

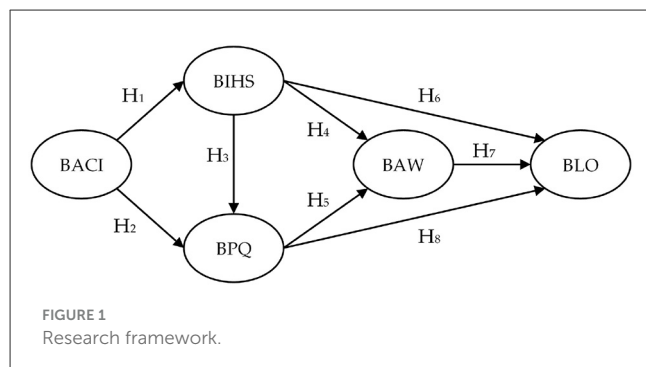
Studies by Kim et al. (2018) and Rehman and Elahi (2024) have both confirmed that brand image has a positive impact on loyalty. Additionally, research by Althuwaini (2022) and Ghafari et al. (2017) further indicates that brand image significantly and positively predicts brand loyalty. Moreover, Bui (2023) study on tourism destination brand equity shows that brand image not only directly influences loyalty but also has an indirect effect through behavioral intention. Recent research (Bańbuła, 2024) also supports the positive relationship between brand image and loyalty. These cross-disciplinary findings collectively support this study's theoretical hypothesis H₆.

- **H₆:** Brand image of health and sustainability has a significant positive impact on brand loyalty.

Existing research provides substantial theoretical support for the relationship between brand awareness and tourist loyalty. Kim et al. (2018) empirically confirmed that brand awareness has a significant direct effect on tourist loyalty. This finding has been supported and expanded upon by subsequent studies: Ghafari et al. (2017) not only validated the positive influence of awareness on loyalty but also revealed its mechanism—enhancing visitation intention and facilitating word-of-mouth behavior (Zhang et al., 2021). Bui (2023) specialized study on tourism destinations also confirmed the universality of this relationship, while Bańbuła (2024) latest research provided updated empirical support for this proposition. Notably, in the specific context of organic agritourism, the influence of brand awareness on loyalty follows a distinct pathway. Studies suggest that higher brand awareness effectively improves tourists' expected quality and participation willingness, thereby enabling them to attain deeper travel experiences (Wang and Shen, 2024a). Such memorable experience quality, as a key mediating variable, has been widely recognized as a crucial antecedent in predicting tourist loyalty (Chen and Rahman, 2018; Gohary et al., 2020). Therefore, this study proposes Hypothesis H₇.

- **H₇:** Brand awareness has a significant positive impact on brand loyalty.

Multiple studies have demonstrated a significant positive relationship between perceived service quality and tourist loyalty: Ghafari et al. (2017) confirmed the direct impact of perceived tourism service quality on brand loyalty; research by Kim et al. (2018) and Rehman and Elahi (2024) similarly supports the positive predictive effect of perceived quality on loyalty; Dam and Dam (2021) further identified the significant influence mechanism of service quality perception on loyalty. Bui (2023) study revealed the mediating pathway through which perceived quality indirectly affects loyalty via satisfaction, while Bańbuła (2024) latest research also validated the robustness of this relationship. Notably, this relationship has been confirmed across various tourism contexts, such as Costa et al. (2024) study on golf courses. Specifically, in the context of organic agritourism, improvements in tourists' perceived quality of organic farming experiences and agricultural products significantly enhance their loyalty—a finding that aligns with the



theory of memorable experience as a mediator (Wang and Shen, 2024a). Therefore, this study proposes Hypothesis H₈.

- **H₈**: Brand perceived quality has a significant positive impact on brand loyalty.

3 Research methodology

3.1 Research framework and hypotheses

Based on the research objectives, this study draws on Aaker's (1991) Brand Equity Model and integrates the Reasonable Person Model to construct a relational model that illustrates how organic agricultural certification and the public's identification with organic agriculture influence brand loyalty. The research framework is presented in Figure 1. Meanwhile, based on this research framework, the following 8 research hypotheses are proposed:

3.2 Research site

This study selects Taiwan's Hualien and Taitung regions as the research site based on several key considerations: first, the area's unique geographical environment (surrounded by mountains on three sides and facing the Pacific Ocean to the east) forms a natural ecological barrier, providing ideal conditions for organic agriculture development. Second, as a core region for organic agriculture development in Taiwan, it boasts 4,876 hectares of certified organic farmland with sustained growth over the past 5 years (Lin and Organic Agriculture Promotion Center, 2024), demonstrating significant representativeness. Third, the area has established a comprehensive certification system, offering an ideal sample for studying the impact of certification systems. Additionally, the high tourist loyalty phenomenon in Hualien-Taitung aligns well with existing theoretical frameworks. Moreover, Hualien's "organic agriculture clusters" and Taitung's "tribal organic culture" exhibit differentiated development patterns (Shen and Wang, 2023), providing valuable internal regional diversity for the research topic. Considering its geographical advantages, industrial scale, policy completeness, and academic value, the Hualien-Taitung region represents the most representative research site for exploring brand equity in organic agritourism.

3.3 Definition and measurement development

This study defines organic agricultural tourism as a distinctive form of tourism that takes the experience of organic agricultural resources and environments as its core purpose. It provides tourists with opportunities to participate in organic production processes, gain knowledge about organic products, and deeply immerse themselves in rural life and ecological environments.

Organic agricultural tourism is guided by the core principles of non-toxic and sustainable environments, healthy lifestyles, and ecological protection. Through immersive organic agricultural experience activities, it systematically enhances tourists' in-depth understanding of the value of organic agriculture, the connotation of food safety, the concept of environmental sustainability, and local rural culture.

Its core elements cover five dimensions: experience of organic agricultural production practices, integration of organic agriculture and environmental education, combination of leisure and entertainment functions, orientation toward sustainable development goals, and inheritance of local characteristic culture. Ultimately, it achieves the coordinated and sustainable development of people, land, economy, and the environment.

In the questionnaire design section, the measurement dimensions of each construct were identified through literature review to serve as the basis for questionnaire development. The details are as follows: this study draws on research by Liu (2020) and Wang and Shen (2024b) to measure brand equity using the following dimensions: loyalty (3 items), awareness (3 items), perceived quality (4 items), brand image of healthy and sustainable (3 items), and brand of assets of certification and identification (5 items). Demographic variables included gender, age, marital status, education level, occupation, income, and residence, measured using a nominal scale.

3.4 Data collection

This study examines organic agritourism brand equity through an empirical investigation conducted in Taiwan's Hualien and Taitung regions. Targeting tourists who participated in organic farming experiences between January 1 and March 30, 2024, the research employed a convenience sampling approach to collect data via the SurveyCake online platform, ultimately obtaining 350 valid responses. Participants were required to meet three criteria: (1) be adults aged 20 or above, (2) have engaged in organic agritourism activities in the study area within the previous year, and (3) possess basic knowledge of organic certification systems. The questionnaire utilized a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree) to measure key constructs. The research strictly followed ethical guidelines, with all respondents fully informed about the study's purpose and their rights, ensuring proper data collection procedures and participant confidentiality throughout the investigation.

3.5 Analysis tool

This study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) for data analysis, a method that demonstrates significant advantages in the following aspects: firstly, as a second-generation multivariate statistical analysis technique, PLS-SEM is particularly suitable for exploratory research in the early stages of theoretical development, effectively addressing predictive issues in complex models. Secondly, by implementing 5,000 bootstrap samples, this study not only overcomes the strict normality distribution requirements of traditional parametric tests but also significantly enhances the stability of parameter estimates through repeated sampling techniques. This large-sample bootstrap analysis provides robust statistical support for model validation, ensuring the reliability of research findings.

In terms of the analytical framework, this study adopts a systematic three-stage validation process: the first stage focuses on examining the reliability and validity of the measurement model to ensure the accuracy of construct measurement. The second stage delves into the path relationships of the structural model, uncovering the intrinsic connections between latent variables. The third stage comprehensively verifies the research hypotheses, providing empirical evidence for theoretical construction. This step-by-step analytical strategy fully leverages the advantages of PLS-SEM in exploratory research, offering methodological assurance for the scientific rigor of the conclusions.

4 Analysis of results

4.1 Demographic variables

The demographic characteristics of respondents showed that there were more female participants (56.0%) than male (44.0%). With ages between 21–30 (32.3%), followed by 31–40(28.0%). There were also more single participants (50.0%) than married (49.7%). A majority (36.3%) have a university degree, followed by Elementary and middle (34.3%). The average monthly income of the participants is 30,000–40,000 TWD with 21.1%, followed by less than 20,000 with 20.0%. Most participants work is civil servant (24.6%), followed by the freelance (22.0%). In terms of their place of residents, a majority live in the northern region (42.9%), followed by those living in the east area (26.6%). [Table 1](#) shows the detailed demographic profiles of the participants.

4.2 Descriptive statistics

The descriptive statistical results presented in [Table 2](#) reveal that all measured constructs received generally favorable evaluations. For loyalty, item means ranged from 3.95 to 3.96, with the highest-rated statement being “I have high loyalty toward organic agritourism.” The awareness dimension showed slightly lower scores ($M = 3.89$ – 3.94), particularly for the item regarding visitation motivated by product reputation. Notably, perceived quality received stronger endorsement ($M = 4.07$ – 4.26),

TABLE 1 Descriptive characteristics of the samples.

Items	Variables	N	%	Items	Variables	N	%
Gender	Male	154	44	Education	Elementary and middle	120	34.3
	Female	196	56		High school	52	14.9
Marital status	Married	174	49.7		College	127	36.3
	Single	175	50		Graduate and above	51	14.6
	other	1	0.3	Place of residence			
Age (years)	21–30	113	32.3		Northern region	150	42.9
	31–40	98	28		Central region	55	15.7
	41–50	89	25.4		Southern region	52	14.9
	51–60	37	10.6		Eastern region	93	26.6
	Above 61	13	3.7	Monthly income (TWD)	≤ 20,000	70	20
Occupation	Student	65	18.6		20,001–30,000	64	18.3
	Civil servant	86	24.6		30,001–40,000	74	21.1
	Service	67	19.1		40,001–50,000	52	14.9
	Business	40	11.4		50,001–60,000	43	12.3
	Freelance	77	22		Above 60,001	47	13.4
	Industry and commerce	15	4.3				

TABLE 2 Descriptive statistical analysis.

Construct	Items		Mean	Standard deviation
BLO	BLO 1	I have high loyalty toward organic farming	3.95	0.86
	BLO2	I have high loyalty toward organic agricultural products	3.95	0.85
	BLO3	I have high loyalty toward organic agritourism	3.96	0.81
BAW	BAW1	I'm here today because organic farming is well known here.	3.93	0.79
	BAW2	I'm here today because the organic produce here is quite famous	3.94	0.79
	BAW3	I am visiting here today because the organic agricultural tourism here is quite famous	3.89	0.80
BPQ	BPQ1	I think this organic farm provides excellent service to tourists	4.12	0.68
	BPQ2	I think this organic farm provides visitors with perfect facilities quality	4.07	0.69
	BPQ3	I think this organic farm provides visitors with in-depth organic agricultural experience and quality	4.18	0.70
	BPQ4	I think the organic produce here is of great quality	4.26	0.69
BIHS	BIHS1	I believe organic farming contributes to environmental sustainability	4.38	0.69
	BIHS2	I believe it embodies the image of healthy tourism	4.37	0.67
	BIHS3	I believe the environmental conditions here are well-suited for organic farming	4.34	0.68
BACI	BACI1	I trust the organic product certification here	4.27	0.67
	BACI2	I can sense the commitment of the operators to organic farming	4.28	0.67
	BACI3	I believe they have the operational and management capabilities to manage organic farming	4.24	0.71
	BACI4	I support the development of organic farming here	4.36	0.69
	BACI5	I believe organic farming is unique	4.31	0.70

especially for perceptions of product quality. The health and sustainable environment image emerged as the most positively evaluated dimension ($M = 4.34\text{--}4.38$), with environmental sustainability perceptions being most prominent. Similarly, organic certification and identity assets were highly rated ($M = 4.24\text{--}4.36$), particularly regarding identification with local organic agriculture development. These findings collectively suggest that while respondents expressed generally positive attitudes across all dimensions, their strongest affirmations concerned environmental benefits and quality perceptions of organic agricultural products.

4.3 Structural model

This study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) for data analysis, a method that demonstrates significant advantages in the following aspects: firstly, as a second-generation multivariate statistical analysis technique, PLS-SEM is particularly suitable for exploratory research in the early stages of theoretical development, effectively addressing predictive issues in complex models. Secondly, by implementing 5,000 bootstrap samples, this study not only overcomes the strict normality distribution requirements of traditional parametric tests but also significantly enhances the stability of parameter estimates through repeated sampling techniques. This large-sample bootstrap analysis provides robust statistical support for model validation, ensuring the reliability of research findings.

In terms of the analytical framework, this study adopts a systematic three-stage validation process: the first stage focuses on

examining the reliability and validity of the measurement model to ensure the accuracy of construct measurement. The second stage delves into the path relationships of the structural model, uncovering the intrinsic connections between latent variables. The third stage comprehensively verifies the research hypotheses, providing empirical evidence for theoretical construction. This step-by-step analytical strategy fully leverages the advantages of PLS-SEM in exploratory research, offering methodological assurance for the scientific rigor of the conclusions.

4.3.1 Measurement model

The measurement models examine the relationships between latent variables and observed variables. Based on the recommendations of Hair et al. (2019a) and Hair et al. (2017), when assessing the reliability and validity of each construct, three fundamental indicators of convergent validity must be considered: individual item factor loadings, Cronbach's α , composite reliability (CR), and average variance extracted (AVE). The analysis results are presented in Table 3 and Table 4.

In this study, the factor loadings of all constructs range between 0.826 and 0.952 (Table 3), all exceeding the threshold of 0.7, while the T-statistics are all significant, indicating a high degree of explanation of the observed variables by their respective latent variables. The Cronbach's α values for the latent variables range from 0.895 to 0.936 (Table 4), and the composite reliability (CR) values range from 0.927 to 0.959 (Table 4), all exceeding the recommended threshold of 0.7, demonstrating strong internal consistency among all constructs. The average variance extracted

TABLE 3 The factor loading of measure model.

Observed variables	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T Statistics (O/STDEV)	P values
BAC1<-BAC1	0.884	0.884	0.015	60.411	0.000
BAC12<-BAC1	0.907	0.907	0.013	69.213	0.000
BAC13<-BAC1	0.865	0.865	0.017	50.537	0.000
BAC14<-BAC1	0.890	0.890	0.013	70.355	0.000
BAC15<-BAC1	0.826	0.826	0.022	38.276	0.000
BIHS1<-BIHS	0.914	0.914	0.012	78.456	0.000
BIHS2<-BIHS	0.932	0.932	0.011	81.043	0.000
BIHS3<-BIHS	0.902	0.902	0.013	69.816	0.000
BPQ1<-BPQ	0.892	0.892	0.013	68.118	0.000
BPQ2<-BPQ	0.855	0.854	0.020	42.349	0.000
BPQ3<-BPQ	0.903	0.903	0.011	78.608	0.000
BPQ4<-BPQ	0.838	0.838	0.017	48.943	0.000
BAW1<-BAW	0.951	0.950	0.007	127.936	0.000
BAW2<-BAW	0.948	0.948	0.008	114.707	0.000
BAW3<-BAW	0.925	0.924	0.013	70.684	0.000
BLO1<-BLO	0.952	0.952	0.007	129.350	0.000
BLO2<-BLO	0.947	0.947	0.008	113.677	0.000
BLO3<-BLO	0.915	0.915	0.012	75.326	0.000

TABLE 4 Construct reliability and validity of measure model.

Construct variables	Cronbach's alpha	rho_A	Composite reliability (CR)	Average variance extracted (AVE)
BAC	0.923	0.923	0.942	0.765
BAW	0.936	0.936	0.959	0.886
BIHS	0.904	0.904	0.940	0.839
BLO	0.931	0.933	0.956	0.880
BPQ	0.895	0.899	0.927	0.761

(AVE) values range from 0.761 to 0.886 (Table 4), all surpassing the recommended threshold of 0.5, indicating that the latent variables explain a substantial portion of the variance in their respective observed variables, thus confirming convergent validity (Hair et al., 2016).

Additionally, the outer VIF values range between 2.205 and 4.977 (below 5), and the inner VIF values range between 1.000 and 4.071 (also below 5), meeting the criterion for the absence of multicollinearity (Hair et al., 2019b).

This study employs a dual-test approach to verify discriminant validity: first, as shown in Table 5, the square roots of the AVE values for all constructs are greater than their correlation coefficients with other constructs, satisfying the Fornell-Larcker criterion. Second, the cross-loadings analysis (Table 6) reveals that all measurement items exhibit significantly higher factor loadings on their respective constructs compared to their loadings on other constructs. Both tests consistently confirm strong discriminant

TABLE 5 Discriminant validity (Fornell-larcker criterion).

Construct variables	BAC	BAW	BIHS	BLO	BPQ
BAC	0.875				
BAW	0.562	0.941			
BIHS	0.869	0.491	0.916		
BLO	0.553	0.759	0.475	0.938	
BPQ	0.724	0.557	0.720	0.556	0.872

validity among the theoretical constructs, ensuring that the measurement tool accurately distinguishes between different latent variables.

4.3.2 Structure model

This study conducted model analysis using variance-based structural equation modeling (SEM), employing Smart PLS (version 3.3.2), an analytical tool developed by Ringle et al. (2005) in 2005 based on the Partial Least Squares (PLS) method, to verify the path relationships and hypothesis testing among variables in the research model. The results are presented in Table 7 and Figure 2.

As shown in Table 7, BACI has a significantly positive effect on BIHS with an adjusted R Square of 0.754, demonstrating high explanatory power. Both BACI and BIHS show significantly positive effects on BPQ with an adjusted R Square of 0.559, indicating high explanatory power. BIHS and BPQ exhibit significantly positive effects on BAW with an adjusted R Square

of 0.323, suggesting moderate explanatory power, among which BPQ has the strongest influence on BAW. BPQ and BAW demonstrate significantly positive effects on BLO, while BIHS shows no significant positive effect on BLO, with an adjusted R Square of 0.599, reflecting high explanatory power, among which BAW has the greatest influence on BLO.

Regarding effect sizes (f^2 values), BACI shows a large effect on BIHS ($f^2 = 3.071$). For BLO, BAW exhibits a large effect ($f^2 = 0.707$), while BIHS ($f^2 = 0.001$) and BPQ ($f^2 = 0.032$) show negligible effects. The influence of BACI ($f^2 = 0.090$) and BIHS ($f^2 = 0.076$) on BPQ is small. Similarly, the effects of BIHS ($f^2 = 0.025$) and BPQ ($f^2 = 0.127$) on BAW are also small. These results indicate that while certain relationships (particularly BACI→ BIHS and BAW→ BLO) demonstrate substantial predictive relevance, most other effects in the model are relatively modest in magnitude.

The mediation analysis results are summarized in Table 8. BACI's effect on BLO is transmitted through five mediated pathways involving BPQ, BIHS, and BAW, with an aggregate effect size of 0.427. The decomposed mediation effects indicate BPQ (0.322) as the most substantial mediator, followed by BAW (0.293) and BIHS (0.248). Correspondingly, BACI influences BAW through three mediated pathways via BPQ and BIHS, producing a total effect of 0.468, where BPQ (0.306) again exhibits stronger mediation than BIHS (0.298). These results consistently identify BPQ as the predominant mediator in both causal pathways, confirming its central role in propagating BACI's effects within the model.

TABLE 6 Cross loadings.

	BAC	BIHS	BPQ	BAW	BLO
BAC1	0.884	0.754	0.654	0.490	0.463
BAC2	0.907	0.757	0.647	0.516	0.485
BAC3	0.865	0.696	0.634	0.510	0.520
BAC4	0.890	0.799	0.607	0.467	0.498
BAC5	0.826	0.787	0.626	0.474	0.452
BIHS1	0.751	0.914	0.686	0.443	0.429
BIHS2	0.799	0.932	0.643	0.433	0.436
BIHS3	0.835	0.902	0.650	0.472	0.440
BPQ1	0.600	0.569	0.892	0.503	0.473
BPQ2	0.520	0.469	0.855	0.450	0.483
BPQ3	0.665	0.646	0.903	0.507	0.504
BPQ4	0.719	0.792	0.838	0.478	0.478
BAW1	0.534	0.467	0.523	0.951	0.711
BAW2	0.556	0.473	0.533	0.948	0.722
BAW3	0.496	0.445	0.516	0.925	0.709
BLO1	0.523	0.458	0.526	0.721	0.952
BLO2	0.540	0.452	0.511	0.736	0.947
BLO3	0.491	0.427	0.529	0.676	0.915

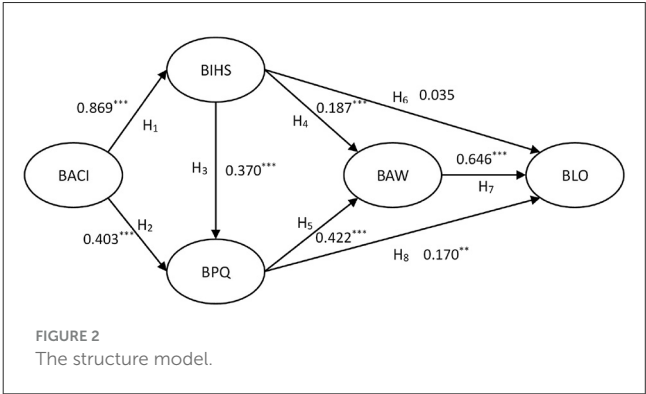


TABLE 7 The structure model.

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T Statistics (O/STDEV)	P values
BAC -> BIHS	0.869	0.869	0.017	50.758	0.000
BAC -> BPQ	0.403	0.405	0.093	4.319	0.000
BIHS -> BAW	0.187	0.185	0.053	3.551	0.000
BIHS -> BPQ	0.370	0.368	0.094	3.958	0.000
BPQ -> BAW	0.422	0.424	0.059	7.215	0.000
BIHS -> BLO	0.035	0.038	0.058	0.599	0.549
BAW -> BLO	0.646	0.644	0.051	12.768	0.000
BPQ -> BLO	0.171	0.170	0.066	2.581	0.010

TABLE 8 Mediation effect analysis.

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T Statistics (O/STDEV)	P values
BACI → BPQ → BAW → BLO	0.110	0.111	0.033	3.332	0.001
BACI → BIHS → BAW → BLO	0.105	0.103	0.031	3.402	0.001
BACI → BIHS → BPQ → BAW → BLO	0.088	0.087	0.024	3.634	0.000
BAC → BPQ → BLO	0.069	0.069	0.033	2.094	0.036
BACI → BIHS → BPQ → BLO	0.055	0.054	0.025	2.248	0.025
BACI → BIHS → BLO	0.030	0.034	0.050	0.599	0.550
BACI → BPQ → BAW	0.170	0.173	0.051	3.350	0.001
BACI → BIHS → BAW	0.162	0.161	0.046	3.518	0.000
BACI → BIHS → BPQ → BAW	0.136	0.134	0.036	3.751	0.000
BIHS → BPQ → BAW	0.156	0.155	0.042	3.703	0.000
BIHS → BAW → BLO	0.121	0.119	0.035	3.435	0.001
BIHS → BPQ → BLO	0.063	0.062	0.028	2.236	0.026
BIHS → BPQ → BAW → BLO	0.101	0.100	0.028	3.590	0.000
BACI → BIHS → BPQ	0.322	0.319	0.080	4.020	0.000
BPQ → BAW → BLO	0.273	0.273	0.040	6.853	0.000

TABLE 9 Tested result of hypotheses.

Hypotheses	β Coefficient	t Value	p	Result
H ₁	0.869	50.758	0.000	Accepted
H ₂	0.403	4.319	0.000	Accepted
H ₃	0.370	3.958	0.000	Accepted
H ₄	0.187	3.551	0.000	Accepted
H ₅	0.422	7.215	0.000	Accepted
H ₆	0.035	0.599	0.549	Rejected
H ₇	0.646	12.768	0.000	Accepted
H ₈	0.171	2.581	0.010	Accepted

4.4 Hypotheses test

Based on the data in Figure 2, *t*-tests were used to verify each research hypothesis. The test results are shown in Table 9 and described as follows:

The path data of BACI on BIHS shows a coefficient of influence of 0.869 and a *t*-value of 50.758, which reaches a significant level, so BACI has a significant positive impact on BIHS, and the research hypothesis H₁ is accepted; the path data of BACI on BPQ shows a coefficient of influence of 0.403 and a *t*-value of 4.319, which reaches a significant level, thus BACI has a significant positive impact on BPQ, and the research hypothesis H₂ is accepted; the path data of BIHS on BPQ shows a coefficient of influence of 0.370 and a *t*-value of 3.958, which reaches a significant level, meaning BIHS has a significant positive impact on BPQ, and the research hypothesis H₃ is accepted; the path data of BIHS on BAW shows a coefficient of influence of 0.187 and a *t*-value of 3.551, which

reaches a significant level, so BIHS has a significant positive impact on BAW, and the research hypothesis H₄ is accepted; the path data of BPQ on BAW shows a coefficient of influence of 0.422 and a *t*-value of 7.215, which reaches a significant level, thus BPQ has a significant positive impact on BAW, and the research hypothesis H₅ is accepted; the path data of BIHS on BLO shows a coefficient of influence of 0.035 and a *t*-value of 0.599, which reaches a significant level, yet BIHS has a significant positive impact on BLO, and the research hypothesis H₆ is rejected; the path data of BAW on BLO shows a coefficient of influence of 0.646 and a *t*-value of 12.768, which reaches a significant level, so BAW has a significant positive impact on BLO, and the research hypothesis H₇ is accepted; the path data of BPQ on BLO shows a coefficient of influence of 0.171 and a *t*-value of 2.581, which reaches a significant level, thus BPQ has a significant positive impact on BLO, and the research hypothesis H₈ is accepted.

5 Discussion

5.1 Research results

BACI has a significant positive impact on BIHS, indicating that organic agriculture and product certification indeed help ensure a sustainable environment free from toxins and the production of healthy organic agricultural products. This fosters tourists' recognition of organic agriculture and shapes their BIHS toward organic agritourism. According to the Taiwan Organic Information Portal (2018), Taiwan's organic agriculture still requires a more robust certification system to enhance consumer recognition in the market. When people's information needs are met, their behavior becomes more rational (Kaplan and Kaplan, 2009). Organic agriculture and product certification provide tourists with

sustainability-related information, such as non-toxicity, health, wellness, and environmental friendliness (Shen et al., 2020), increasing their trust in the products and contributing to brand image enhancement (Kim et al., 2018).

BACI and BIHS have a significant positive impact on BPQ, indicating that organic agriculture and product certification can ensure environmental sustainability, which is a critical factor in enhancing tourists' experiential quality (Wang and Shen, 2024a). Additionally, organic agricultural products meet tourists' health needs (Shen et al., 2022b), increasing their trust and recognition of organic agritourism quality while also improving their perceived quality of organic agritourism (Kim et al., 2018). BIHS has a significant positive influence on perceived quality, meaning that tourists' perception of environmental sustainability and health imagery in organic agritourism strengthens their perceived quality of organic agriculture. Relevant studies show that brand image is highly positively correlated with perceived quality (Bańbuła, 2024; Kim et al., 2018). Furthermore, the indirect effect of BACI on BPQ through BIHS is 0.322, accounting for 44.41% of the total effect (0.725) of BACI on BPQ. This demonstrates that BIHS is a key mediating variable in the relationship between BACI and BPQ.

BIHS and BPQ have a significant positive impact on BAW, with BPQ demonstrating a stronger influence. This indicates that both brand image and perceived quality affect brand awareness, and that organic agritourism possesses unique environmental sustainability and health values. This uniqueness creates memorable and positive experiences for tourists (Wang and Shen, 2024a), which enhances the intensity of their memories. Relevant studies have found positive correlations between brand image, perceived quality and awareness (Bańbuła, 2024; Kim et al., 2018). The present findings further reveal that brand image forms tourists' expectations, while perceived quality represents their actual post-experience evaluation of quality. Clearly, perceived quality has a greater impact on awareness than brand image. The data show that the indirect effect of BIHS on BAW through BPQ is 0.156, accounting for 26.99% of the total effect (0.578) of BIHS on BAW. This confirms that BPQ serves as a key mediating variable in the influence of BIHS on BAW.

BPQ and BAW have significant positive effects on BLO, with BAW demonstrating the strongest influence. This indicates that brand awareness serves as the key determinant affecting BLO. The findings also suggest that the quality of organic agritourism experiences creates memorable travel experiences for visitors (Wang and Shen, 2024a), which enhances the destination's brand awareness and consequently influences destination loyalty (Chen and Rahman, 2018; Gohary et al., 2020). This study's results align with previous research demonstrating that: brand awareness positively affects loyalty (Bańbuła, 2024; Bui, 2023; Ghafari et al., 2017; Kim et al., 2018); Perceived quality positively influences loyalty (Costa et al., 2024; Dam and Dam, 2021).

The effect of BIHS on BLO was found to be non-significant, which differs from related studies demonstrating positive relationships between brand equity and loyalty (Althuwaini, 2022; Bańbuła, 2024; Ghafari et al., 2017; Kim et al., 2018). The study reveals that BIHS exerts an indirect effect of 0.105 on BLO through BAW, indicating that BIHS must contribute to enhancing tourists' awareness of organic agritourism to generate a stronger influence on BLO via BAW. This finding confirms BAW as a crucial

mediating variable in the relationship between BIHS and BLO. Regarding this discovery, the study posits that while the non-toxic and eco-friendly characteristics of organic agriculture represent its unique value proposition—enabling tourist recognition and image formation—these attributes must further strengthen brand awareness among tourists to ultimately foster loyalty.

BPQ exerts an indirect effect of 0.273 on BLO through BAW, accounting for 61.63% of the total effect (0.443) of BPQ on BLO. This demonstrates that BAW serves as a crucial mediating variable in BPQ's influence on BLO. Given the highly competitive nature of the organic agritourism market, brand awareness emerges as a key determinant of loyalty. Moreover, due to the intangible characteristics of tourism experiences, tourists' firsthand quality perceptions become pivotal factors influencing both brand awareness and loyalty (Chen, 2024). This finding represents a distinctive contribution of the current study, as it diverges from previous research conclusions suggesting that brand awareness affects loyalty through perceived quality (Bui, 2023; Oppong et al., 2020).

BACI influences BLO through BPQ, BAW, and BIHS with effect sizes of 0.322, 0.293, and 0.248 respectively, with BPQ demonstrating the strongest mediating effect. Similarly, BACI affects BAW through BPQ and BIHS with effect sizes of 0.306 and 0.298, again showing BPQ as the most significant mediator. These results clearly indicate that BPQ serves as the most crucial mediating variable in BACI's influence on both BAW and BLO. This conclusion further validates the applicability of the Reasonable Personal Model to organic agritourism branding. Another noteworthy finding is that experience quality constitutes the core value of tourism (Liu, 2020), highlighting that tourists' perceived quality of experience is a critical factor influencing loyalty (Chen, 2024).

5.2 Implications

5.2.1 Theoretical implications

This study applies Kaplan and Kaplan (2009) Reasonable person model—to construct an organic agritourism brand equity RPM framework, analyzing the influence of organic agriculture and product certification on tourist loyalty. Its key theoretical contributions include: (a) Using organic agriculture and product certification as modeling factors, confirming their role as critical determinants of tourist loyalty; (b) Brand image of sustainability and health (BIHS), perceived quality (BPQ), and brand awareness (BAW) as essential validity components that drive meaningful tourist loyalty behavior in organic agritourism; and (c) Extending the application of RPM to organic agritourism brand equity research.

Specifically, this study brand of assets of certification identification (BACI) as a core driver of brand equity: unlike traditional brand equity studies (e.g., [Aaker, 1991]), which primarily focus on general brand asset dimensions, our findings highlight the pivotal role of organic certification as a brand-specific asset, addressing a gap in existing literature (e.g., [Cervova and

Vavrova, 2021; Zhang et al., 2021]) regarding the impact of certification in agritourism branding.

Furthermore, this study redefines the causal pathways among brand image of sustainability and health (BIHS), perceived quality (BPQ), and brand awareness (BAW): the results reveal a BIHS→ BPQ influence (contrary to the conventional BPQ→ BIHS path), indicating that organic agritourism's health and safety image depends more on certification-based trust than post-experience quality evaluation. Meanwhile, BPQ exhibits the strongest mediating effect, suggesting that tourists' actual experience quality (BPQ) drives brand awareness (BAW) and loyalty (BLO) more powerfully than brand imagery (BIHS), challenging Oppong et al.'s (2020) traditional BAW→ BPQ pathway.

Notably, this study demonstrates that BAW has the most direct and robust impact on BLO, contrasting with prior research (Bui, 2023; Kim et al., 2018) that downplays awareness's role. This implies that the intangible nature and unique health value of organic agritourism amplify BAW's effect on loyalty. Beyond supporting the RPM's effective→ meaningful action chain, this finding brand perceived quality (BPQ) as the central mechanism in brand equity, offering new theoretical foundations for sustainable brand management in agritourism.

5.2.2 Practical implications

To enhance consumer confidence and market recognition of organic agriculture, it is imperative to strengthen the organic certification system through a three-pronged approach. At the institutional level, governments should refine certification standards and invest in professional training for auditors to ensure rigorous implementation. For producers, technical training programs should be implemented to improve organic farming techniques and product quality. Concurrently, comprehensive public education campaigns are needed to increase consumer understanding of certification logos and traceability systems. As demonstrated by prior research (Abubakar and Ilkan, 2016; Han and Hyun, 2015), such measures to bolster trust in organic certification directly influence consumer purchase intentions and loyalty. A robust certification ecosystem encompassing policy, production, and consumer education will ultimately drive the sustainable development of organic agritourism by strengthening the crucial link between certified quality and tourist trust.

To strengthen tourists' awareness of environmental protection and health values while shaping a healthy and sustainable brand image, organic agritourism operators should strategically highlight the eco-friendly and health-conscious attributes of organic farming. By integrating the unique characteristics of organic agriculture—including its chemical-free practices, environmental sustainability, and health benefits—with authentic cultural elements such as traditional farming knowledge, rural lifestyles, and local cuisine (Lynch et al., 2010; Shuai et al., 2022), operators can design immersive experiential activities. These hands-on experiences not only enhance visitor engagement but also create memorable and meaningful travel encounters (Wang and Shen, 2024a), fostering deeper emotional connections with environmental conservation (Vada et al., 2019). Ultimately, this approach cultivates stronger

environmental stewardship among tourists, motivating them to actively support and protect organic farming ecosystems (Chassang et al., 2024; Shen et al., 2022b).

To enhance tourists' brand perception through deepened experiential activities and improved organic product quality, operators should strategically leverage organic agricultural landscapes and rural lifestyles to design captivating travel experiences. Perceived quality (BPQ) serves as a crucial mediator between organic certification (BACI) and loyalty (BLO), suggesting that offering self-directed, leisurely rural experiences can create distinctive and memorable encounters (Wang and Shen, 2024b). Concurrently, rigorous implementation of organic certification standards ensures product quality that meets health-conscious tourists' expectations (Jang et al., 2015; Ramkissoon et al., 2018). This dual approach of experiential differentiation and quality assurance enhances perceived value, ultimately achieving marketing differentiation that strengthens brand appeal and visitor loyalty.

To enhance brand awareness through distinctive organic agritourism experiences, destinations should leverage their unique organic, non-toxic, and eco-friendly characteristics by integrating environmental education into immersive activities (Shen et al., 2020). This approach allows visitors to authentically engage with rural lifestyles while deepening their ecological knowledge and prompting self-reflection on personal values (Shen and Wang, 2023). By offering genuine, memorable experiences (Lee and Lee, 2021; Sthapit and Coudounaris, 2018; Sthapit et al., 2023), destinations can implement differentiated marketing strategies that significantly boost organic agritourism's visibility. Since awareness serves as a crucial determinant of loyalty, this experiential differentiation ultimately strengthens brand equity by creating distinctive cognitive associations in tourists' minds.

6 Conclusions and future research

6.1 Conclusions

This study constructs an organic agritourism brand equity model based on the RPM framework, verifying that organic agriculture and product certification as brand-specific assets can positively influence environmental sustainability and health imagery, perceived quality, and brand awareness, thereby enhancing tourist loyalty. The findings reveal that perceived quality exhibits the most significant mediating effect in the impact pathway, followed by environmental sustainability and health imagery, as well as brand awareness. This model successfully extends the application of the RPM framework in tourism brand equity research, providing an effective theoretical framework for predicting tourist loyalty.

Furthermore, the study breaks through the traditional paradigm of brand equity research by uncovering the intrinsic mechanism through which brand-specific assets influence loyalty via multiple mediating pathways, offering important insights for brand management and marketing strategies in organic agritourism. The research outcomes not only demonstrate academic innovation but also provide practical guidance for

enhancing the brand competitiveness and sustainable development of organic agritourism, bearing both theoretical significance and practical value.

6.2 Limitation and future research

This study constructs an organic agritourism brand equity impact model based on the RPM theory, with empirical results demonstrating that organic certification can effectively predict tourist loyalty through three dimensions. However, as the research sample was limited to Taiwan's Hualien-Taitung region and considering the distinctive characteristics of organic agritourism development across different locations, further validation is required to determine whether these findings can be generalized to other regions or alternative tourism formats. Additionally, while this study primarily focuses on the impact relationships within brand equity, it has not explored potential antecedent variables affecting brand equity nor thoroughly examined the mechanisms through which brand equity influences tourists' actual behaviors—both representing valuable directions for future research. Methodologically, this study adopts a longitudinal quantitative research design. Subsequent studies could incorporate cross-sectional tracking research, in-depth qualitative interviews, cross-regional comparative analyses, or mixed-methods approaches to yield more comprehensive and profound research insights.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent from the [patients/ participants OR patients/participants legal guardian/next

of kin] was not required to participate in this study in accordance with the national legislation and the institutional requirements.

Author contributions

DW: Writing – review & editing, Writing – original draft. X-LC: Visualization, Supervision, Writing – review & editing. C-CS: Writing – original draft, Software, Conceptualization, Methodology, Writing – review & editing.

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