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Youth preferences toward agro-ecotourism in the peri-urban: insights from Hanoi, Vietnam

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Abstract
Agro-ecotourism (AET) has emerged as a sustainable alternative to conventional tourism, integrating ecological conservation with rural development. This study examines youth preferences toward AET in Hanoi's peri-urban areas through a binary logistic regression model grounded in random utility theory. Utilizing primary data from 288 university students aged 18-23, the analysis identifies key determinants influencing willingness to participate in AET, including income, tour interpretation quality, accommodation standards, experiential farming activities, local cuisine, and cultural immersion. Marginal willingness to pay (MWTP) estimates indicate that informative tour guidance and comfortable lodging are most highly valued by youth, while cultural attributes, though significant, are relatively less prioritized. Gender and income further mediate perceptions of AET's developmental role, particularly regarding commercialization risks and cultural preservation. The findings advance theoretical insights into youth consumer behavior within sustainable tourism and offer practical implications for designing youth-oriented, experience-rich agro-ecotourism products. The study highlights the strategic role of youth in shaping future directions for sustainable rural tourism.

Keywords: Agro-ecological tourism, youth, logistics regression

1. Introduction
Experiential agro-ecotourism (AET) models have the potential to generate supplementary income essential for sustaining small and medium-sized household economies, thereby contributing to the overall well-being of rural and peri-urban communities (Che, 2015; Madhu Babu & Ahire, 2021; Veljkovic & Brocic, 2017) [10, 26, 44]. These models are increasingly promoted as viable strategies for local development, as they enable urban tourists to directly experience and engage with agricultural practices, natural products, and rural ecological systems (Ammirato, Felicetti, Raso, Pansera, & Violi, 2020) [2]. The facilitation of such interactions fosters not only economic benefits but also the development of farmers' environmental awareness, understanding, and positive attitudes toward rural landscapes, agro-ecosystems, and the broader natural environment (Ammirato *et al*., 2020; Che, 2015) [2, 10]. Importantly, the long-term viability of AET initiatives relies on the preservation of agro-ecological quality, the safeguarding of traditional agricultural knowledge, and the maintenance of agricultural productivity and product quality (Ammirato & Felicetti, 2014) [1]. Sustainable agro-ecotourism is embodied through dynamic interactions between farmers and tourists, typically characterized by six fundamental elements: authenticity, enjoyment, added value, relationship building, learning, and active participation. These elements are critical for enhancing the overall visitor experience while simultaneously reinforcing sustainable land-use practices and local identity. Moreover, models of peri-urban rural development highlight the importance of rational and planned exploitation of agricultural resources. When combined with the cultural and natural heritage embedded in rural areas, such strategies can serve as effective levers for promoting sustainable regional growth and resilience (Ammirato & Felicetti, 2014) [1].
Agro-ecotourism is widely regarded by scholars as a sustainable alternative to conventional mass tourism, particularly in natural areas, as it offers the potential to mitigate many of the environmental and socio-cultural impacts associated with large-scale tourism development. While this form of tourism has traditionally been more appreciated by older generations, younger tourists are often perceived as less attracted to its core features (Cini & Passafaro, 2017) [15]. However, prior research also suggests that destination image and specific

destination attributes significantly influence youth travel decisions (P.-J. Chen & Kerstetter, 1999) [12]. Despite these insights, the attitudes, beliefs, and perceptions of young people towards agro-ecotourism remain underexplored and require further scholarly attention. In the context of Vietnam, targeting the younger generation in agro-ecotourism development appears both timely and strategic. First, youth are anticipated to play a pivotal role in promoting sustainable lifestyles and responsible consumption patterns in the future. Second, they represent one of the fastest-growing segments within the global tourism market. Third, paradoxically, they currently appear to be less engaged with or attracted to agro-ecotourism experiences (Cini, Leone, & Passafaro, 2012; Litvin & Chiam, 2014) [14, 25]. Research findings on young tourists' preferences and attitudes toward agro-ecotourism have been mixed. While some studies report low participation rates, others indicate that growing environmental and social awareness among youth has led to increased interest in sustainable travel options, including agro-ecotourism (Cini *et al*., 2012) [14].

This study, therefore, seeks to emphasize the importance of promoting peri-urban agro-ecotourism among younger generations and to examine the level of their actual interest and engagement. Specifically, it aims to: (i) assess young people's awareness and understanding of agro-ecotourism (including prior exposure and perceptions of its key characteristics); (ii) evaluate their attitudes, motivations, and intentions toward participating in agro-ecotourism; and (iii) identify the factors influencing their willingness to engage in such experiences.

2. Literature Review

2.1 Agro-ecotourism Concepts and Definitions

Agro-ecotourism (AET) emerges at the intersection of agriculture, rural livelihoods, and ecological tourism, representing a sustainable tourism approach that integrates ecological principles and agricultural experiences (Barbieri & Mshenga, 2008; Flanigan, Blackstock, & Hunter, 2015) [4, 19]. This concept synthesizes two distinct forms of tourism including agritourism and ecotourism to encourage environmentally responsible behaviors among tourists while promoting local agricultural practices and cultural heritage (Phillip, Hunter, & Blackstock, 2010) [30]. Agritourism typically involves visiting working agricultural enterprises to engage in activities such as farm stays, agricultural education, harvesting experiences, or culinary tourism, serving as a diversification strategy for rural economies (Tew & Barbieri, 2012) [40]. Conversely, ecotourism emphasizes responsible travel practices aimed at environmental conservation, biodiversity preservation, and cultural sensitivity, often implemented in protected natural areas (Fennell, 2008) [17]. Agro-ecotourism uniquely combines these domains, positioning agricultural landscapes as ecological spaces that provide immersive, environmentally sustainable experiences (Schilling, Sullivan, & Komar, 2012) [35].

According to (Barbieri, 2012) [3], agro-ecotourism encompasses activities where tourists actively participate in sustainable agricultural practices, environmental conservation, and cultural interactions within rural communities. Such interactions not only foster greater ecological consciousness among visitors but also strengthen rural livelihoods by creating supplementary income sources (Sznajder, Przezbórska, & Scrimgeour, 2009) [39]. For example, organic farm visits, permaculture workshops, sustainable harvesting, and educational sessions on biodiversity exemplify agro-ecotourism activities that align environmental stewardship with community benefit (Barbieri & Valdivia, 2010; Choo & and Jamal, 2009) [6, 13]. The definition and practice of agro-ecotourism emphasize sustainable resource use, biodiversity conservation, and fostering visitor appreciation of agricultural landscapes and local ecosystems. Specifically, agro-ecotourism practices align closely with principles of sustainability by balancing environmental integrity, economic viability, and socio-cultural responsibility (Sharpley & Vass, 2006) [37]. Such alignment fosters an integrated approach that supports conservation goals, empowers rural communities, and enhances tourist experiences by creating authentic and educative encounters within agricultural and natural settings (Flanigan *et al*., 2015) [19].

Globally, agro-ecotourism has gained recognition as a sustainable development tool capable of addressing rural economic stagnation while contributing to environmental sustainability goals outlined by the United Nations Sustainable Development Goals (SDGs), particularly regarding poverty alleviation, responsible consumption, and biodiversity protection (UNWTO, 2020). In Vietnam, the growth of agro-ecotourism has been notably promoted through governmental initiatives aimed at rural economic diversification and environmental preservation, supporting the conservation of agricultural heritage and biodiversity while enriching tourist experiences (T. H. H. Nguyen & and Cheung, 2014) [27].

In short, agro-ecotourism represents an integrated, sustainable form of rural tourism combining agricultural production and ecological responsibility. It uniquely serves educational, economic, and conservation-oriented goals, reinforcing rural livelihoods and environmental stewardship through authentic and meaningful interactions between visitors and local communities within agricultural ecosystems.

2.2 Youth as a Strategic Tourist Segment

Youth tourism represents one of the fastest-growing segments globally, characterized by distinct preferences, behaviors, and motivational factors, positioning young tourists as strategic targets for niche tourism sectors, including agro-ecotourism (Richards, 2015) [33]. Defined generally as travelers aged 15-30 years, youth tourists seek authentic, experiential activities emphasizing cultural interaction, environmental sustainability, educational opportunities, and social connectivity (Gardiner & Kwek, 2016; Richards & Wilson, 2006) [20, 34]. The youth segment is particularly attractive due to its longer average trip duration, high expenditure per trip, and openness to new experiences (Richards, 2015) [33]. Youth travelers frequently prioritize immersive, educational, and sustainability-oriented experiences, aligning closely with agro-ecotourism offerings such as organic farming activities, community-based workshops, and rural cultural exchanges (Barbieri, Sandra, & and Gil Arroyo, 2020) [5]. (Richards, 2015) [33] highlights that young tourists are motivated by factors such as personal growth, environmental awareness, and community engagement, making them ideal candidates for sustainable tourism experiences embedded in rural and agricultural contexts.

Agro-ecotourism provides youth with hands-on interactions that encourage environmentally responsible behaviors, enhance cultural awareness, and deepen understanding of sustainable agricultural practices. These experiences resonate strongly with younger generations, who increasingly seek purposeful travel and actively engage with sustainability initiatives (Scott, Hall, & Gössling, 2019) [36]. Additionally, youth tourists often share their experiences widely through social media, significantly influencing destination marketing, visibility, and reputation, thereby amplifying the strategic importance of targeting this segment (Prayag, Hosany, & Odeh, 2013) [31].

Research suggests that understanding youth tourists' specific preferences, such as affordability, experiential authenticity, convenience, and educational value, can significantly enhance agro-ecotourism products and effectively leverage their market potential (Buffa, 2015) [8]. For instance, younger travelers frequently prefer personalized and culturally immersive experiences over conventional mass tourism products, emphasizing opportunities for self-development, learning, and meaningful interactions with local communities (Barbieri *et al*., 2020) [5].

In Vietnam, youth tourists represent an increasingly relevant market, especially given national policy initiatives focused on sustainable rural tourism development. By effectively targeting this demographic, agro-ecotourism operators and policymakers can create tailored products that fulfill youth-specific expectations, thus contributing to long-term economic viability, community development, and environmental conservation (T. H. H. Nguyen & and Cheung, 2014) [27].

3. Methodology

3.1. Theoretical Framework

The microeconomic foundation for discrete choice models is grounded in Lancasterian consumer theory, which posits that utility is derived not from the goods themselves but from the attributes embodied within those goods cannot be consumed independently (Fernandez-Castro & Smith, 2002) [18]. According to this framework, different combinations of product attributes generate varying levels of utility, thereby influencing consumer preferences and decision-making (Hanley, Mourato, & Wright, 2001) [21]. This attribute-based approach provides the conceptual basis for analyzing choices among differentiated products or experiences, such as those found in agro-ecotourism. To empirically model such consumer behavior, particularly in non-market valuation and marketing research contexts, economists typically employ random utility theory (RUT). RUT facilitates the modeling of multinomial choices in situations where alternatives are discrete and unordered. In this study, to investigate the decision-making process of young individuals regarding participation in agro-ecotourism, a binary logistic regression model is adopted. This model, rooted in RUT, is appropriate when the dependent variable is dichotomous, representing a choice between two alternatives (Hoffman & Duncan, 1988) [23].

Binary logistic regression is a nonlinear model that estimates the probability of an event (in this case, participation in agro-ecotourism) based on a set of independent variables, which may be either binary or continuous. The regression coefficients can be interpreted in terms of odds ratios, providing insights into the relative influence of each predictor on the likelihood of participation. Logistic models are widely applied in modeling binary decisions, including in studies by (Bucur, Florin, Blaziu, Elena, & and Nita-Lazar, 2017; D. Chen *et al*., 2025; Cole, 2009; Hasim *et al*., 2025) [7, 11, 16, 22], particularly in agriculture, environment, and tourism contexts. Within this framework, a young individual is assumed to choose the option that maximizes their expected utility from participating in agro-ecotourism experiences. Accordingly, the theoretical decision model is specified as follows:

$$y_i^* = \beta_0 + \sum_{j=1}^{k} \beta_{ij} x_{ij} + u_i$$

Let x_{ij} denote the vector of explanatory variables associated with individual *i* and alternative *j*, while β_{ij} represents the corresponding vector of regression coefficients. The term u_i is a stochastic error component, assumed to follow a logistic distribution, consistent with the random utility framework. The latent variable y_i^* captures the unobserved net utility or benefit that young individuals derive from participating in agro-ecotourism experiences. Although y_i^* itself is not directly observable, it underlies the decision-making process and informs the actual observed outcome. The observed binary outcome variable y_i reflects whether an individual chooses to engage in agro-ecotourism activities. It is defined as follows:

$$y_i = \begin{cases} 1 \; if \; y_i^* > 0 \\ 0 \; \text{otherwise} \end{cases}$$

Empirically, the probability that an individual derives experienced utility (or pleasure) from participating in agro-ecotourism can be expressed using the logistic cumulative distribution function as follows:

$$\log\left\{\frac{p_i}{1 - p_i}\right\} = \beta_0 + \sum_{j=1}^{k} \beta_{ij} x_{ij}$$

In this study, the willingness of young people to experience agro-ecotourism was measured by a binary variable with a value of 1 for willing to participate and 0 (not willing to participate). The explanatory variables represent two groups of factors influencing the decision to be willing to experience tourism. These groups of attributes were selected from relevant existing documents and tested in a preliminary survey. Accordingly, the demographic and behavioral characteristics of young people (DEMO) such as: Age; Gender; Income; Place of residence; Experience of agro-ecotourism; and Preference for traveling alone (a=6) (Table 1). The related attributes (ATRB, b=7) to agro-ecotourism destinations (Table 2) such as: Information provided by tour guides; Accommodation conditions; Experiential activities; Local meals; Traditional culture; Craft market; Package tour fee (Chaminuka, Groeneveld, Selomane, & van Ierland, 2012) [9]. The logistic model used in the choice analysis is expressed as follows:

$$\log\left\{\frac{p_i}{1-p_i}\right\} = \beta_0 + \sum_{a=1}^{6}\beta_{ia}DEMO + \sum_{b=1}^{7}\beta_{ib}ATRB$$

3.2. Sampling and Data

In this study, all primary data were collected through direct interviews with university students aged 18 to 23 (Table 1). These respondents included individuals who had either participated in agro-ecotourism experiences, heard about the concept, or possessed general knowledge related to agro-ecological tourism. A stratified random sampling method was employed to select a sample of 300 students across various academic disciplines, all of whom were studying and residing in Hanoi at the time of the survey. Prior to the main data collection, a pilot survey was conducted with 30 students to test the clarity, structure, and reliability of the questionnaire. After conducting preliminary data screening and validity checks, a total of 288 fully completed and reliable questionnaires were retained for use in the regression analysis.

The structured questionnaire was composed of three main sections. The first section gathered information on respondents' demographic characteristics (e.g., gender, place of origin, education level) and their personal views on organizing and participating in tourism activities. The second section comprised a series of closed-ended questions aimed at evaluating the relative importance of specific agro-ecotourism destination attributes in influencing young tourists' willingness to participate. The final section explored respondents' general knowledge and collective attitudes regarding the connections between agro-ecotourism, rural development, and the sustainability of agro-ecosystems. In addition to the primary data obtained from the survey, secondary data were collected from academic literature, government reports, and official documents issued by relevant state management agencies involved in tourism and rural development. These supplementary sources provided contextual information and supported the interpretation of the empirical findings.

Table 1: Descriptive statistic

Categories		Preferred[A]	Non-preferred[B]
Age		19.95	20.08
Gender	Female	0.597	0.644
	Male	0.402	0.355
Income	Level1	0.195	0.250
	Level2	0.614	0.586
	Level3	0.190	0.163
Place of origin	Rural	0.739	0.740
	Urban	0.260	0.259
AET Experience	No	0.750	0.750
	Yes	0.250	0.250
Preferred travel style	Accompanied travel	0.608	0.596
	Solo travel	0.391	0.403

Source: Survey data

Note: Results are based on two-sided tests. For each significant pair, the key of the category with the smaller column proportion appears in the category with the larger column proportion. Significance level for upper case letters (A, B, C): .05. Level1, Level2, and Level3 denotes < 3 mil VND/month, 3-5 mil VND/month, and >5 mil VND/month.

4. Results and Discussion

4.1. Agro-ecotourism Development in Vietnam

Agro-ecotourism in Vietnam has emerged as a significant strategy aimed at revitalizing rural economies, conserving biodiversity, and promoting sustainable development. Combining agricultural activities with ecological tourism experiences, agro-ecotourism integrates visitors into rural environments, fostering cultural exchange, ecological awareness, and economic diversification (T. H. H. Nguyen & and Cheung, 2014; Truong, Hall, & Garry, 2014) [27, 42]. Vietnam's diverse agricultural landscapes, characterized by rice terraces, tea plantations, organic farms, and orchards, offer substantial potential for agro-ecotourism. Governmental and local initiatives increasingly support this development, viewing it as a critical tool for poverty reduction, rural livelihood enhancement, and environmental conservation (Truong *et al*., 2014) [42]. Policies such as the Vietnam National Strategy on Green Growth (2012) and various provincial rural tourism programs underscore agro-ecotourism's importance in national sustainable development strategies (T. Q. T. Nguyen, Young, Johnson, & Wearing, 2019) [28]. Several regions, including the Mekong Delta, Central Highlands, and Northern mountainous areas, have successfully developed agro-ecotourism models, promoting unique rural experiences and sustainable agricultural practices. For instance, organic farming-based tourism in the Mekong Delta has attracted tourists interested in educational and participatory activities such as fruit harvesting, traditional cooking, and homestay experiences, facilitating substantial economic gains for rural households.

Challenges in Vietnam's agro-ecotourism development include limited infrastructure, inadequate tourism management skills among local stakeholders, and environmental vulnerabilities exacerbated by climate change (Truong *et al*., 2014) [42]. Furthermore, commercialization risks compromising the authenticity of rural experiences and ecological integrity. Thus, there is an urgent need for capacity building, community-based management practices, and effective policy interventions to ensure sustainability (Trinh, Ryan, & Bui, 2020) [41]. Recent research highlights successful community-based agro-ecotourism initiatives, demonstrating benefits in ecological conservation, economic diversification, and community empowerment. Initiatives like the homestay programs in Sa Pa, community-based tea tourism in Thai Nguyen, and organic agricultural tours in Can Tho exemplify the effective integration of tourism with

sustainable agriculture (T. H. H. Nguyen & and Cheung, 2014) [27].

Vietnam's agro-ecotourism sector demonstrates significant potential as a sustainable tourism model that harmonizes rural development, environmental stewardship, and cultural preservation. Effective management, targeted government policies, stakeholder collaboration, and strategic planning remain essential to ensuring the long-term viability and resilience of agro-ecotourism across Vietnam's diverse rural regions.

4.2. Exploring the Potential for Agro-Ecotourism in the peri-urban Hanoi

Hanoi possesses substantial potential for agro-ecotourism development, attributed to its diverse agricultural landscapes, rich cultural heritage, and proximity to urban centers. The city's peri-urban districts, such as Long Bien, Ba Vi, and Soc Son, offer a blend of traditional farming practices and natural beauty, making them ideal for agro-ecotourism initiatives (Quynh, 2024) [32]. Long Bien district has initiated agro-ecotourism activities that allow tourists to engage in farming experiences, including vegetable cultivation and fruit harvesting. These activities not only provide educational value but also promote sustainable agricultural practices among visitors (Sy, 2023) [38]. Ba Vi district, known for its mountainous terrain and national park, offers opportunities for integrating eco-tourism with agricultural experiences. Visitors can explore tea plantations, and dairy farms, and participate in traditional farming activities, enhancing their understanding of local agricultural practices (VietnamTIC, 2024) [45]. Soc Son district, with its scenic landscapes and proximity to the city center, has the potential to develop community-based agro-ecotourism models. By involving local communities in tourism activities, such initiatives can promote cultural exchange and provide additional income sources for residents (Nhuong, 2023) [29].

The development of agro-ecotourism in Hanoi aligns with the city's strategic goals of promoting sustainable tourism and preserving cultural heritage. By leveraging its agricultural assets and engaging local communities, Hanoi can create unique tourism experiences that cater to both domestic and international visitors. However, challenges such as limited infrastructure, lack of professional training for local farmers, and the need for effective marketing strategies must be addressed to realize the full potential of agro-ecotourism in Hanoi. Collaborative efforts between government agencies, local communities, and private stakeholders are essential to overcome these obstacles and ensure the sustainable development of agro-ecotourism in the region (Nhuong, 2023; Quynh, 2024; Sy, 2023; VietnamTIC, 2024) [29, 32, 38, 45].

4.3 Youth Preferences towards Agro-ecotourism Attributes

Table 2 presents the results of a Chi-square analysis examining how youth preferences for specific agro-ecotourism attributes vary across gender and income levels. Among the listed attributes including tour interpretation, accommodation, experiential activities, local meals, traditional culture, craft markets, and tour pricing. Experiential activities emerged as the only attribute showing a statistically significant difference across income groups ($\chi^2 = 5.948$, $p<0.1$). Notably, respondents in the Level2 income group (3-5 million VND/month) exhibited a stronger preference for hands-on, immersive experiences in agro-ecotourism, suggesting that this middle-income cohort values interactive, educational, and authentic elements more than lower or higher income groups. While other attributes such as accommodation and tour interpretation were rated highly by both genders, no significant gender-based differences were observed. Preferences for local meals, traditional culture, and craft markets showed generally positive but statistically non-significant trends. Interestingly, higher-priced options ($40 and $60 USD) are more favored by higher-income respondents (Level2 and 3), though the preference difference is insignificant. Notably, interest in the $20 USD package is limited, indicating that price sensitivity is mediated by perceived value. These findings underscore the importance of pricing strategy and experiential value in designing agro-ecotourism products that are attractive and accessible to youth, especially those from middle-income backgrounds who are more engaged with experience-driven tourism.

Table 2: Youth preferences towards agro-ecotourism attributes

Categories		Gender		Chi-square	Income			Chi-square
		Female	Male		Level1[A]	Level2[B]	Level3[C]	
Tour interpretation		0.507	0.306	0.460	0.174	0.503	0.135	1.844
Accommodation		0.448	0.267	0.413	0.142	0.444	0.128	1.245
Experiential activities		0.514	0.319	0.026	0.181	0.483	0.170[B]	5.948*
Local meal		0.299	0.181	0.083	0.097	0.288	0.094	0.526
Traditional culture		0.451	0.257	1.518	0.146	0.438	0.125	0.562
Craft market		0.104	0.076	0.380	0.038	0.094	0.049	3.525
Package tour fee	20 USD	0.035	0.031	0.681	0.007	0.038	0.021	6.081
	40 USD	0.486	0.295		0.160	0.486	0.135	
	60 USD	0.094	0.059		0.049	0.080	0.024	

Source: Survey data

Note

*, ** The Chi-square statistic is significant at the 0.1 and 0.05 level. Results are based on two-sided tests. For each significant pair, the key of the category with the smaller column proportion appears in the category with the larger column proportion. Significance level for upper case letters (A, B, C): .05

4.4. Factors Influencing Youth Preferences and Choices

In the logistic regression model presented in Table 3, several independent variables were found to have a statistically significant influence on the satisfaction levels of young tourists experiencing agricultural ecotourism ($p < 0.05$). Notably, the Income (1) variable, representing young tourists with a monthly income ranging from 3 to 5 million

VND (approximately 120-200 USD), was positively associated with higher satisfaction, suggesting that individuals within this income bracket are more likely to perceive greater value from the agro-ecotourism experience. Additionally, the quality of information provided by tour guides emerged as a significant predictor, underscoring the importance of knowledgeable and communicative guides in enhancing visitor satisfaction. Accommodation conditions also had a significant effect, indicating that the comfort and quality of lodging facilities play a critical role in shaping the overall experience.

Among experiential factors, agricultural-related experience activities were positively associated with satisfaction, highlighting the appeal of hands-on, immersive engagement with farming practices. Furthermore, local cuisine significantly contributed to satisfaction, reflecting the growing interest among young tourists in authentic culinary experiences tied to local agricultural products. Finally, indigenous culture was also a significant determinant, demonstrating that cultural richness and opportunities for cultural interaction enhance the perceived value of the agro-ecotourism experience. These findings suggest that both material factors (e.g., income level, accommodation) and experiential or cultural dimensions (e.g., local food, indigenous traditions, interactive activities) play a pivotal role in shaping young tourists' satisfaction with agro-ecotourism in Hanoi.

Table 3: Factors influencing young people's decisions to participate in agro-ecotourism

Categories	B	S.E.	Wald	Sig.	Exp(B)	MWTP
Constant	-13.183	2.543	26.859	0.000	0.000	-
Age	0.147	0.100	2.186	0.139	1.159	94854.8
Gender	0.060	0.355	0.029	0.864	1.062	39053.0
Income	-	-	5.606	0.060	-	-
Income (1)	1.260*	0.580	4.711	0.030	3.525	808246.7
Income (2)	0.391	0.494	0.628	0.428	1.479	251409.2
Place of origin	-0.290	0.404	0.513	0.473	0.748	-185989.0
AET Experience	-0.438	0.408	1.153	0.282	0.645	-281207.8
Travel style	0.515	0.368	1.953	0.162	1.674	330734.9
Tour interpretation	2.361*	0.601	15.422	0.000	10.601	1514419.0
Accomodation	2.462*	0.507	23.587	0.000	11.731	1579386.8
Experiential activities	1.450*	0.508	8.143	0.004	4.265	930466.9
Local food	2.235*	0.363	37.892	0.000	9.350	1433910.7
Traditional culture	1.144*	0.420	7.419	0.006	3.141	734254.5
Craft market	0.631	0.449	1.969	0.160	1.879	404831.2
Package tour fee	0.000	0.000	4.236	0.039	1.000	-

Source: Survey data

Note: * Statistical significance was observed with a *p*-value less than 0.05

The performance of the logistic regression model is assessed using pseudo-R^2 statistics and model fit diagnostics. The Cox & Snell R Square value of 0.407 and the Nagelkerke R Square value of 0.558 indicate a moderate to strong explanatory power of the model. Although logistic regression does not employ the traditional R^2 measure used in linear regression, these pseudo-R^2 values provide insight into the proportion of variation in the dependent variable explained by the model. When comparing competing models applied to the same dataset and dependent variable, a higher pseudo-R^2 generally indicates a better-fitting model. Moreover, the Hosmer and Lemeshow goodness-of-fit test yielded a p-value of 0.088, suggesting that the model fits the data adequately, as the null hypothesis of good model fit is not rejected at the 5% significance level (see Appendix).

The Beta coefficients (log-odds) from the regression model quantify the effect of each explanatory variable on the likelihood of a young tourist's willingness to participate in agro-ecotourism experiences. The sign of the coefficient indicates the direction of the relationship, while the magnitude reflects the strength of the effect. Specifically, the regression results reported in Table 3 reveal that improvements in the following attributes are positively and significantly associated with the willingness to participate, at the 95% to 99% confidence level: Quality of information provided by tour guides (β = 10.601); Accommodation conditions (β = 11.731); Agricultural experience activities (β = 4.265); Local cuisine (β =9.350); Richness of local culture (β =3.141). These results suggest that enhancing these key experiential components substantially increases the likelihood of participation among young tourists. For example, the positive coefficient for accommodation conditions indicates that a one-unit improvement in perceived accommodation quality leads to an estimated 11.731 times increase in the odds of a young tourist being willing to engage in agro-ecotourism experiences.

4.5. Willingness to Pay of Young Tourists for Agro-Ecotourism

Based on the regression results presented in Table 3, the marginal willingness to pay (MWTP) for each attribute included in the logistic model can be estimated. MWTP represents the additional amount a respondent is willing to pay for a one-unit improvement in a given attribute of the agro-ecotourism experience, while holding other factors constant. For each parameter, MWTP is derived using the marginal rate of substitution (MRS) between the regression coefficient of the attribute and the regression coefficient of the tour package price. This is computed using the following formula:

$$\text{MWTP} = \frac{\beta j}{\beta \ tour \ price}$$

The concept of MWTP is particularly relevant in the context of non-market valuation, where goods or services (e.g., cultural heritage, ecological quality, or local experiences) do

not have a market price but are still valued by consumers. This approach is commonly used in environmental economics and tourism studies to quantify the implicit value of experiential or intangible attributes (Juutinen *et al*., 2011) [24]. Estimating MWTP allows for a better understanding of which specific features of the agro-ecotourism product are most valued by young tourists. It also provides actionable insights for pricing strategies, policy interventions, and the design of experience packages tailored to target audiences.

The regression analysis identified several statistically significant attributes influencing young tourists' willingness to participate in agro-ecotourism, including Income (1), Information provided by tour guides, Accommodation conditions, Experiential activities, Local cuisine, and Local culture (Table 3). Using the estimated coefficients from the logistic regression model, the marginal willingness to pay (MWTP) for each attribute was calculated to assess the monetary value that young tourists assign to improvements in specific components of the agro-ecotourism experience. The results indicate that young tourists are willing to pay the highest tour prices when they are especially satisfied with the quality of accommodation and the information provided by tour guides. Specifically, the estimated WTP for improved accommodation conditions is 1,579,386.8 VND (approximately 63.2 USD), while the WTP for high-quality tour guide information is 1,514,419.0 VND (approximately 60.6 USD). In contrast, the lowest WTP was associated with local culture, with an estimated value of 734,254.5 VND (approximately 29.4 USD). While this attribute is still statistically significant, the relatively lower monetary valuation suggests that, although young tourists appreciate cultural experiences, they may prioritize tangible service quality and informative guidance more heavily when deciding whether to engage in agro-ecotourism. These findings highlight the differentiated value that young tourists place on various components of the agro-ecotourism experience and offer practical insights for tourism providers. Improving accommodation and enhancing interpretive services delivered by guides may yield the greatest returns in terms of attracting and satisfying this demographic segment.

4.6. Youth Perspectives on Sustainable Rural Development through Agro-Ecotourism

In fact, agro-ecotourism has generated substantial economic and social benefits for numerous local communities and tourism-related enterprises. The direct involvement of farmers in tourism activities has contributed to the creation of diverse and engaging agro-ecotourism products that reflect authentic rural lifestyles. This integration not only enhances the attractiveness and distinctiveness of local tourism offerings but also provides additional income streams for farmers**,** thereby improving their livelihoods beyond traditional agricultural production. Table 4 presents the results of a Chi-square analysis examining youth perspectives on sustainable rural development through agro-ecotourism across gender and income groups.

Table 4: Youth Perspectives on Sustainable Rural Development through Agro-Ecotourism

Categories	Gender		Chi-square	Income			Chi-square
	Female	Male		Level1[A]	Level2[B]	Level3[C]	
Benefit	0.403	0.253	0.002	0.115	0.420	0.122	5.473*
Problem	0.281	0.212	2.306	0.108	0.313	0.073	2.075
Challenge	0.306	0.201	0.175	0.128	0.302	0.076	3.498
Risk	0.500	0.330	0.864	0.205[B]	0.465	0.160	12.013**
Concern	0.389	0.240	0.036	0.163[B]	0.351	0.115	6.186**
Solution	0.493	0.340	3.193*	0.201[B]	0.486	0.146	5.939*

Source: Survey data

Note: *, ** The Chi-square statistic is significant at the 0.1 and 0.05 level. Results are based on two-sided tests. For each significant pair, the key of the category with the smaller column proportion appears in the category with the larger column proportion. Significance level for upper case letters (A, B, C): .05

Statistically significant differences were found in several dimensions. Income level significantly influenced perceptions of benefits ($\chi^2 = 5.473$, $p < 0.1$), risks ($\chi^2 = 12.013$, $p < 0.05$), concerns ($\chi^2 = 6.186$, $p < 0.05$), and solutions ($\chi^2 = 5.939$, $p < 0.1$), with middle-income respondents (Level 2B) consistently expressing stronger recognition of both the positive impacts (e.g., income generation and rural resilience) and potential threats (e.g., environmental degradation and cultural erosion) associated with agro-ecotourism. This group also showed greater support for practical interventions such as infrastructure development and community-based governance. Gender-based differences were statistically significant for concerns ($\chi^2 = 6.186$, $p < 0.05$) and solutions ($\chi^2 = 3.193$, $p < 0.1$), with female respondents demonstrating heightened sensitivity to the cultural risks of commercialization and a stronger inclination toward structured, participatory solutions. In contrast, perceptions of problems and challenges particularly regarding infrastructural constraints and limited professional capacity were not significantly different across gender or income, suggesting shared awareness of foundational barriers to agro-ecotourism development. These findings underscore the importance of income- and gender-sensitive strategies in designing inclusive and sustainable agro-ecotourism policies.

5. Conclusion

This study contributes to the emerging discourse on sustainable rural tourism by providing empirical evidence on the determinants of youth preferences and participation in agro-ecotourism (AET) within the peri-urban context of Hanoi, Vietnam. Through the application of binary logistic regression grounded in random utility theory, the research has identified a coherent set of socio-demographic and experiential factors that significantly influence young individuals' willingness to engage in AET and their corresponding levels of satisfaction. Key findings indicate that both structural and experiential attributes, specifically income level, quality of tour interpretation, accommodation standards, agricultural activities, local gastronomy, and

indigenous cultural features, substantially affect youth preferences. Among these, tour guide interpretation and accommodation were assigned the highest marginal willingness to pay (MWTP), suggesting that service quality and knowledge transfer are paramount in enhancing the perceived value of agro-ecotourism experiences among young tourists. While cultural experiences remain significant, their relatively lower MWTP values imply that such intangible elements are less prioritized compared to more tangible and service-based components.

From a socio-economic perspective, the middle-income cohort (earning 3-5 million VND/month) emerged as the most engaged segment, reflecting a strong correlation between moderate disposable income and propensity to seek immersive and educational tourism experiences. This group also demonstrated heightened awareness of both the developmental benefits and the potential socio-environmental risks associated with AET, particularly in relation to commercialization, cultural commodification, and ecological degradation. Furthermore, the study identified gender-based perceptual variations, with female respondents expressing greater concern for cultural preservation and favoring participatory, community-based solutions for tourism governance.

These findings offer several theoretical and practical implications. Theoretically, the study extends the scope of sustainable tourism literature by emphasizing the intersection between youth consumer behavior, experiential valuation, and agro-ecological tourism models in rapidly urbanizing contexts. Practically, the results highlight the need for agro-ecotourism product designers and policymakers to tailor offerings that align with the specific preferences and socio-economic conditions of youth segments. Emphasis should be placed on enhancing service quality, interpretive content, and affordability while fostering participatory mechanisms that allow youth to co-create and promote agro-ecotourism initiatives, particularly through digital and social media platforms where their influence is substantial. Moreover, agro-ecotourism in peri-urban Hanoi holds considerable potential as a transformative platform for reconnecting urban youth with rural values, promoting sustainable consumption practices, and diversifying rural economies. To capitalize on this potential, it is imperative that tourism development strategies integrate youth-specific insights into broader rural development frameworks. This includes targeted investment in infrastructure, professional training for local service providers, and the institutionalization of feedback mechanisms that capture evolving youth expectations and behavioral trends.

In conclusion, this study affirms that youth are not only viable but also strategic agents in advancing the agro-ecotourism sector in Vietnam. The successful engagement of this demographic necessitates a multi-dimensional approach grounded in empirical evidence and participatory governance that harmonizes economic, environmental, and cultural objectives within a sustainable tourism paradigm. Future research should consider longitudinal analyses and comparative studies across regions to further validate and refine the observed patterns and implications.

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Appendix

A1. Descriptive statistics of logistic regression

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	150.7889145	14	4.9980E-25
	Block	150.7889145	14	4.9980E-25
	Model	150.7889145	14	4.9980E-25
Model Summary				
Step 1	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square	
	225.947[a]	0.407599658	0.558608678	
a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.				
Hosmer and Lemeshow Test				
Step 1	Chi-square	df	Sig.	
	13.7624485	8	0.088171118	