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Path diagram of SEM-PLS Public Perception of Ecotourism in Jambi Province

Bunga Mardhotillah[1], Fadhlul Mubarak[2], Vinny Yuliani Sundara[3], Shally Yanova[4], Gusmanely Z[5]

[1,4,5] Universitas Jambi, Jambi, Indonesia
[2,3] UIN Sultan Thaha Saifuddin, Jambi, Indonesia
Email: bunga.mstat08@unja.ac.id

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ABSTRACT

Tourism activities are a necessity for individuals and communities because they provide a refreshing impact, both physically and spiritually. One tourism activity that can bring humans closer to nature and the Creator is ecotourism or ecological tourism. This study aims to analyze the factors influencing public perceptions and preferences in Jambi Province towards Ecological Tourism during the Covid-19 Pandemic, spanning the initial pandemic period, PSBB, PPKM, New Normal, and post-pandemic. This research method uses a quantitative approach with primary data from a survey in the form of questionnaires distributed to the community, which data analysis uses SEM-PLS assisted by Smart-PLS software. The results of this study suggest that based on the SEM-PLS path diagram, the path coefficients indicate that all aspects of visitor assessments of ecological tourism destinations in Jambi Province need to be improved, especially related to tourist destination cleanliness, ecological tourism accessibility, tourist attractions, and infrastructure conditions. Therefore, good cooperation between the community and the government is highly recommended in the management of ecological tourism areas in Jambi Province.

Corresponding Author:
Bunga Mardhotillah
Universitas Jambi, Jambi, Indonesia; bunga.mstat08@unja.ac.id

1. INTRODUCTION

Ecotourism is tourism that is packaged, managed, and utilized with a conservation approach. The main pillars of ecotourism are the ecological aspect as the main pillar, the economic pillar, and the social and cultural pillars. These pillars are inseparable from the community as the actors in the ecotourism. According to A. Sonny Keraf in Nusa (2021), there are five public perceptions of nature/the

environment: anthropocentrism as the first perception, which assumes that humans are the most central beings compared to other creatures. The second perception is biocentrism, which positions nature as an entity separate from its relationship with humans. The third perception is ecocentrism, which emphasizes the philosophy of ecology. The fourth perception is ecofeminism, which emphasizes the connection between women and nature. The fifth perception is natural rights, which perceives the ownership of human rights by biotic and abiotic communities in nature.

Ecological tourism requires community wisdom in terms of protecting and preserving nature, such as active community participation in waste management in ecotourism areas, wise use of natural resources in ecological tourism areas, and so on. In general, the hopes of the people of Jambi Province are the same as the hopes of people in other provinces in Indonesia regarding ecological tourism management, including the hope for government policies to accelerate the development of infrastructure facilities/infrastructure in ecotourism areas, and easy access to ecological tourism sites. In addition to these factors, there are various other important factors that have not been explored by the community.

Based on the above description, the research team is interested in further research related to: Analysis of factors that influence public perception and preferences towards ecological tourism (ecotourism) in Jambi Province during the Covid-19 pandemic, both at the beginning of the pandemic (end of 2019), until the beginning of 2022. In this study, the SEM-PLS Model will be compared based on public perception and preferences towards four ecotourism areas in Jambi Province, which are spread across several regencies/cities, namely the Sipin Lake Ecotourism Area in Jambi City, the Lubuk Larangan Ecotourism Area in Bungo Regency, the Lempur Ecotourism Village Area in Kerinci Regency, and the Air Hitam Laut Village Ecotourism Area in East Tanjung Jabung Regency.

The focus of the problem in this research is the perception and preferences of the people of Jambi Province towards several ecotourism areas within Jambi Province, namely the Sipin Lake Ecotourism Area in Jambi City, the Lubuk Larangan Ecotourism Area in Bungo Regency, the Lempur Ecotourism Village Area in Kerinci Regency, and the Air Hitam Laut Village Ecotourism Area in East Tanjung Jabung Regency. Public perception is measured by several variables, as are public preferences. The Specific Objective of this research is to advance ecotourism in Jambi Province, especially in several ecological tourism areas, through the SEM – PLS model formed from public perceptions and preferences, and conveyed to relevant stakeholders through reports and articles of this research later. Based on the background and focus of the research described above, this research try to know how is the SEM - PLS Model of Jambi Province Community Perception of the Sipin Lake Ecotourism Area in Jambi City, the Lubuk Larangan Ecotourism Area in Bungo Regency, the Lempur Ecotourism Village Area in Kerinci Regency, and the Air Hitam Laut Village Ecotourism Area in East Tanjung Jabung Regency.

According to Mearns (2011) in Fikri (2021), community-based ecotourism emerged as a significant breakthrough in poverty alleviation, environmental conservation, and the promotion of sustainable ecotourism. This is because communities possess adequate knowledge of their surrounding environment and culture, which constitute the potential, selling point, and attraction of ecotourism through local wisdom. Therefore, community participation and active participation are essential for the government. Ecotourism, with the community as the base, recognizes the rights of local residents to organize and operate tourism activities according to customary law and to manage the areas they own (Aritonang, 2019).

Jambi Province is rich in ecotourism areas spread across eleven regencies/cities. Based on previous research, several ecotourism areas within Jambi Province, namely the Sipin Lake Ecotourism Area in Jambi City, the Lubuk Larangan Ecotourism Area in Bungo Regency, the Lempur Ecotourism Village Area in Kerinci Regency, and the Air Hitam Laut Village Ecotourism Area in East Tanjung Jabung Regency, are potential ecotourism areas. However, there has been no further research comparing public perceptions and preferences towards these four ecotourism areas.

This study aims to analyze the factors influencing public perceptions and preferences in Jambi Province toward ecological tourism during the COVID-19 pandemic, spanning the initial pandemic

period, large-scale social restrictions (PSBB), community activity restrictions (PPKM), the new normal, and the post-pandemic period. It is hoped that this research will contribute to visitor assessments of ecological tourism destinations in Jambi Province, particularly regarding cleanliness, accessibility, tourist attractions, and infrastructure conditions.

2. METHODS

This study uses SEM PLS as an analysis tool. Structural Equation Modeling Partial Least Squares (SEM PLS) is a multivariate analysis technique used to examine relationships between complex constructs. This method is suitable for exploratory research, especially when data does not meet the assumption of a normal distribution or the sample size is relatively small. SEM PLS focuses on prediction and theory exploration rather than theory confirmation. To facilitate its use, SmartPLS software is presented as an intuitive tool and is popular among social and business researchers. SEM PLS consists of two main models: a measurement model (outer model) and a structural model (inner model). The measurement model describes the relationship between indicators and latent constructs, while the structural model shows the relationships between the latent constructs themselves. SmartPLS visualizes these two models in the form of path diagrams, allowing researchers to easily build and modify desired models interactively. PLS SEM doesn't require strict assumptions like normal distribution, making it highly flexible across a wide range of data types and research fields.

To use SmartPLS, the first step is to import data into the application, typically in .csv or Excel format. Then, researchers build a model by dragging variables into the workspace and connecting them according to hypotheses. The estimation process is then carried out using the PLS algorithm, and the results obtained include loading values, construct reliability, discriminant validity, and path coefficient and R-square values to determine the strength of the relationships between constructs. Construct validity can be assessed using the AVE value, while reliability can be assessed using the Cronbach's Alpha or Composite Reliability value. Relationships between constructs are measured using path coefficients, with significance tested using t-statistics obtained through bootstrapping. All of these analyses help researchers draw appropriate conclusions regarding their research hypotheses.

This research was conducted in four ecotourism areas in Jambi Province, namely Lake Sipin, Lempur Tourism Village, Air Hitam Laut Village, and Lubuk Larangan. This research method is descriptive and inferential. Qualitative and quantitative descriptive analysis was applied in SEM – PLS modeling using SmartPLS software, by measuring, analyzing, and interpreting the perceptions and preferences of the Jambi Province community towards ecological tourism in the Regency/City in Jambi Province. Several stages in this research include: (1) Preliminary Research: Preliminary research consists of distributing preliminary questionnaires, conducting interviews and FGDs. (2) Collection of Ecological Tourism Data: Collection of ecotourism data from Regency/City in Jambi Province, and community behavior in ecotourism. (3) Descriptive Analysis: Descriptive Analysis includes crosstabulation of ecotourism data. (4) Visualization of SEM-PLS Modeling of Community Perception of Ecotourism in Jambi Province using SmartPLS.

3. FINDINGS AND DISCUSSION

This study consists of 8 latent variables, namely Perception and Preference which have 6 indicators, Tourism Satisfaction with 6 indicators, Cleanliness of Tourist Attraction Facilities with 7 measuring indicators, infrastructure conditions with 5 indicators, accessibility of tourist attractions with 6 indicators, potential for improving the welfare of the community around tourist attractions with 5 measuring indicators, Ecotourism Attraction measured with 8 indicators, and the uniqueness of tourist attractions indicated by 5 items/indicators.

The research instrument, a questionnaire distributed to respondents, contained the following points:

1. Latent Variable 1: Jambi Province Community Perceptions and Preferences regarding ecotourism, with indicators thought to influence this: (1) Distance from Home to Ecological Tourism Locations; (2) Head of Family Income; (3) Number of Family Members; (4) Time

Allocation for Ecotourism; (5) Average Accommodation Costs for Visiting Ecological Tourism Sites; (6) Average Food Costs.

2. Latent Variable 2: Tourism Satisfaction, with measurement indicators: (1) Enjoying the Scenery; (2) Using Photo Spots; (3) Exploring Trails; (4) Exploring Waterways; (5) Engaging in Outbound Activities; (6) Wandering in Ecotourism Areas.
3. Latent Variable 3: Cleanliness of Tourist Attraction Facilities, with measurement indicators: (1) Beauty (Landscape); (2) Cleanliness of Food Stalls/Cafes/Culinary Areas around the Ecotourism Area; (3) Cleanliness of Information Centers; (4) Cleanliness of Prayer Rooms; (5) Trash Cans; (6) Cleanliness of Toilets; (7) Cleanliness of Parking Areas.
4. Latent Variable 4: Accessibility of Tourist Attractions, with measurement indicators: (1) Convenience; (2) Transportation; (3) Signs/Road Directions; (4) Road Access to the Ecotourism Site; (5) Availability of Public Transportation Facilities; (6) Access to Google Maps of the Ecotourism Site.
5. Latent Variable 5: Potential for Improving Community Welfare around Ecotourism Locations, with the following measurement indicators: (1) Improved Community Skills; (2) Increased Employment Opportunities; (3) Improved Economic Development; (4) Increased Community Involvement in Environmental Conservation; (5) Increased Community Creativity.
6. Latent Variable 6: Ecotourism Attractions: (1) Flora and Fauna; (2) Unique Ecosystem Characteristics; (3) Supporting Natural Phenomena; (4) Cultivation of Natural Resources; (5) Local Wisdom; (6) Agrotourism; (7) Availability of Facilities for Interests/Hobbies.
7. Latent variable 7: Infrastructure Conditions, with indicators: (1) Communication Network; (2) Electricity Network; (3) Clean Water Installation; (4) Waste Disposal System; (5) Administrative Infrastructure.
8. Latent Variable 8: Uniqueness of Ecological Tourism Sites: (1) Hot Springs; (2) Waterfalls; (3) Lakes; (4) Caves; (5) Biodiversity.

The SEM-PLS path diagram analyzed using Smart PLS software is as follows:

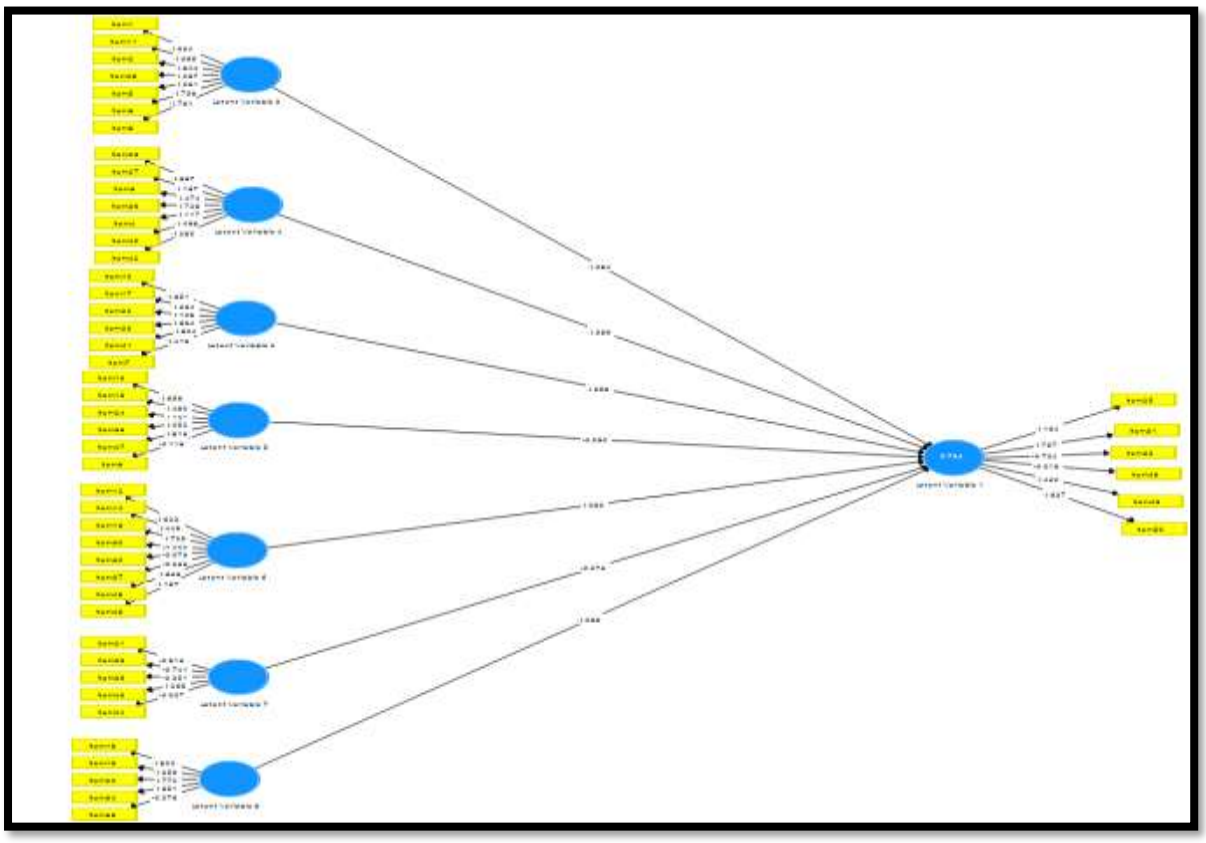

Figure 1. Path Diagram of SEM PLS influences Factors of public perception about Ecotourism in Jambi Province

Based on the path diagram (Figure 1) above, based on the path coefficients, it can be seen that all aspects of visitor assessment of ecological tourist attractions in Jambi Province must be improved, especially regarding the cleanliness of tourist attractions, accessibility of ecological tourism, the attractiveness of tourist attractions, and the condition of their infrastructure.

The results of this study provide insightful empirical findings about how various factors influence public perceptions and preferences toward ecotourism in Jambi Province, especially during and after the COVID-19 pandemic. The SEM-PLS analysis, as depicted in the path diagram, confirms that several constructs significantly affect community engagement with ecological tourism: cleanliness, accessibility, infrastructure conditions, attractiveness, and the potential for improving community welfare (Kumagai, Bandyopadhyay, & Grandvoinnet, 2019).

One of the major findings is that the cleanliness of ecotourism sites plays a vital role in shaping public perception. This supports previous research by (Hosseini, Macias, & Garcia, 2022), which highlighted that environmental hygiene is a crucial determinant of tourist satisfaction in natural tourism settings. Moreover, clean facilities such as toilets, prayer rooms, and food stalls not only improve tourist comfort but also reflect proper ecological management, aligning with ecotourism principles. The theoretical foundation can be traced to the Environmental Psychology Theory (Wijnia, Noordzij, Arends, Rikers, & Loyens, 2024), which postulates that perceptions of cleanliness are linked to emotional responses and behavioral intentions in natural environments.

Furthermore, accessibility significantly influences both perception and preference. Easy access through well-maintained roads, transportation availability, and GPS integration (Google Maps access) contributes to higher satisfaction and preference toward certain ecotourism destinations (Abd Rahman et al., 2021). This aligns with the findings of Kiper (2013), who suggested that accessibility is a key factor in successful sustainable tourism development, especially in rural or nature-based tourism areas. This is also in line with Service Quality Theory, particularly the "tangibility" dimension, which includes physical facilities and accessibility as tangible service elements that influence perceptions of quality (Pandey, de Coninck, & Sagar, 2022).

The attractiveness of tourist destinations encompassing unique flora and fauna, local wisdom, agro-tourism, and eco-education was found to be a strong predictor of perception and preference. This echoes the work of (Mahmoud, El Samanoudy, & Jung, 2023), who emphasized that the unique natural and cultural elements of ecotourism destinations are critical in differentiating them from mass tourism and building visitor loyalty. The attractiveness factor also confirms the Destination Image Theory, which states that both cognitive (what tourists know) and affective (how tourists feel) evaluations shape overall destination perception.

Another significant finding is the role of infrastructure conditions such as communication networks, electricity, clean water systems, and administrative infrastructure in shaping positive perception. This supports the research of Suhartanto et al. (2019), who found that infrastructural readiness enhances not only tourist satisfaction but also their intention to revisit and recommend a destination. From a theoretical lens, this can be analyzed through the Sustainable Tourism Development Framework, which underlines that proper infrastructure supports long-term sustainability and community well-being (Deshpande & Kabeer, 2024). Indicators such as job creation, increased skills, economic development, and environmental involvement demonstrate that ecotourism is not merely a recreational activity but also a socio-economic tool. These findings mirror the concept of Community-Based Tourism (CBT) as presented by (Titin, Dilliana, Tonce, Tanur, & Winarti, 2024) and (Johnson, 2020), where local communities are both beneficiaries and protectors of natural tourism assets.

In summery, this research confirms that a multidimensional approach encompassing physical, social, economic, and environmental variables is essential in evaluating public perception and preference regarding ecotourism. It also reaffirms that ecotourism should not only be ecologically sustainable but also socially empowering and economically viable. By integrating the findings with relevant theories and prior studies, this research strengthens the argument that public perception is deeply intertwined with tangible improvements in facilities and community welfare. Such insights are

instrumental for policymakers, tourism developers, and local stakeholders to enhance the sustainability and appeal of ecotourism destinations in Jambi Province.

4. CONCLUSION

In the SEM-PLS path diagram, the path coefficients show that all aspects of visitor assessment of ecological tourism sites in Jambi Province need to be improved, especially regarding the cleanliness of tourist sites, accessibility of ecological tourism, attractiveness of tourist sites, and the condition of the infrastructure. Therefore, good cooperation between the community and the government is recommended in managing ecological tourism areas in Jambi Province. Government support greatly influences the development of ecological tourism potential and can improve public perception and preferences in choosing ecological tourism as a priority family tourism destination.

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