

**Article Type:** Research Paper

Segmenting International Tourists in Indonesia: A Cluster Analysis of Preferences, Motivations, and Behaviors

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THIS ARTICLE IS AVAILABLE IN:

<http://journal.umy.ac.id/index.php/jerss>

DOI: [10.18196/jerss.v9i1.23582](https://doi.org/10.18196/jerss.v9i1.23582)

CITATION:

Wang, T-L., & Azizurrohman, M.
(2025). Segmenting International
Tourists in Indonesia: A Cluster
Analysis of Preferences,
Motivations, and Behaviors. *Journal
of Economics Research and Social
Sciences*, 9(1), 93-107.



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Abstract: This study conducts a cluster analysis of international tourists visiting Indonesia to identify distinct market segments based on travel motivations and behaviors. A sample of 1,050 respondents revealed four key segments: Leisure Seekers, Cultural Explorers, Adventure Enthusiasts, and Budget Travelers. Leisure Seekers from Australia and Germany are drawn to luxury and wellness experiences. At the same time, Cultural Explorers, mainly from China and Japan, are motivated by cultural heritage. Adventure Enthusiasts, younger tourists from Europe and the United States, prefer outdoor activities and eco-friendly tourism, whereas Budget Travelers prioritize affordability. The study emphasizes the importance of tailored marketing strategies to meet the needs of these diverse segments. The discriminant and silhouette analysis validated the clusters, confirming their statistical significance. These findings provide actionable insights for tourism operators and policymakers in Indonesia, offering a roadmap for enhancing visitor satisfaction and promoting sustainable tourism development. Despite its contributions, the study is limited by its focus on major destinations and a defined period, which may not capture evolving tourism trends. Future research should explore niche markets, track changes over time, and assess the effectiveness of targeted marketing strategies. This research highlights the need for segmentation in tourism marketing to sustain Indonesia's competitiveness in the global market.

Keywords: Tourist Segmentation; Cluster Analysis; International Tourists; Indonesia; Tourism Marketing; Travel Behavior

JEL Classification: M31; L83; Z32

Introduction

In today's intensely competitive global tourism market, understanding tourist preferences and behaviors is not only advantageous but critical for developing effective market segmentation strategies. As tourism destinations increasingly compete for visitors, identifying distinct segments within the tourist population allows stakeholders to tailor marketing efforts to meet diverse needs, thereby improving visitor satisfaction and destination competitiveness (Mirzaei et al., 2023). This is particularly true for destinations like Indonesia, which boast an unparalleled array of attractions, ranging from its stunning natural landscapes to its rich cultural heritage. Such diversity appeals to a wide spectrum of travelers with varying expectations and travel motivations.

The evolving dynamics of the tourism industry, influenced by factors such as changing consumer preferences and global challenges like the COVID-19 pandemic, further underscore the need for precise market segmentation (Jopp et al., 2022; Li et al., 2021). With its unique combination of beaches, cultural experiences, and adventure tourism, Indonesia attracts millions of international visitors annually. However, their preferences are not uniform but shaped by many factors, including demographic characteristics, cultural backgrounds, and external conditions such as economic fluctuations and global health crises (Moliner-Tena et al., 2024; Zhang & Walsh, 2020). As a result, a one-size-fits-all approach to tourism marketing is insufficient in a destination as diverse as Indonesia. To optimize tourism offerings and create more personalized experiences, tourism stakeholders must adopt sophisticated analytical techniques such as cluster analysis, which can segment the tourist population into meaningful groups based on shared characteristics.

Cluster analysis has been widely recognized as an effective tool for identifying and understanding the distinct segments within a tourist population. By categorizing tourists based on shared traits—such as travel motivations, spending patterns, and length of stay—this technique allows destinations to develop tailored marketing and management strategies (Dalmaijer et al., 2022; Olson & Araz, 2023). Previous research has demonstrated the value of cluster analysis in tourism segmentation. For instance, Bieger & Laesser (2002) and Dolnicar (2002) have highlighted how grouping tourists based on their travel preferences can reveal critical insights into their behaviors and expectations. More recently, (Al-Saad et al., 2023) emphasized the need to segment tourists by their distinct motivations and behaviors to improve visitor satisfaction and develop more effective tourism products.

Understanding these distinct tourist segments is essential for Indonesia, which caters to a broad range of international travelers. Tourists visit Indonesia for various reasons—some seek luxury and wellness experiences, others seek cultural exploration, and others are still drawn to adventure and eco-tourism. Building on the existing body of knowledge, this research aims to conduct a comprehensive cluster analysis of international tourists visiting Indonesia. The study will categorize tourists based on their preferences, motivations, and behaviors, utilizing data from tourism statistics and passenger exit surveys. By employing quantitative methods, the research seeks to identify well-defined tourist segments that reflect the diverse characteristics of Indonesia's international visitors, ultimately providing actionable insights for marketers and policymakers to develop targeted strategies that enhance the country's appeal in the global tourism market.

Research Method

This study employs a quantitative research design, utilizing cluster analysis to segment international tourists visiting Indonesia based on their preferences, motivations, and behaviors. The objective is to identify distinct tourist segments that can inform targeted

marketing strategies, ultimately enhancing the competitiveness of Indonesia's tourism sector.

Data were collected through a combination of primary and secondary sources. For the primary data, structured questionnaires were administered to international tourists at key entry and exit points in Indonesia, including major airports such as Soekarno-Hatta International Airport and Ngurah Rai International Airport, as well as popular tourist destinations like Bali, Yogyakarta, and Lombok. These surveys covered various topics, including demographics, travel motivations, preferred activities, accommodation choices, and spending patterns. In addition to the surveys, in-depth interviews were conducted with a subset of tourists to gain qualitative insights into their travel experiences and preferences. These interviews helped provide a deeper understanding of the factors driving tourist behavior. Secondary data were sourced from official tourism statistics provided by the Indonesian Ministry of Tourism and Creative Economy, which included information on tourist arrivals, length of stay, expenditure patterns, and other relevant indicators.

A multi-stage sampling technique was used to select respondents, ensuring a representative sample of international tourists visiting Indonesia. The final sample comprised 1,050 respondents, capturing various demographic backgrounds and travel motivations.

The data analysis began with descriptive statistics to summarize the respondents' demographic characteristics, travel motivations, and behaviors. This provided an overview of the sample population and set the foundation for the cluster analysis. The primary method for segmentation was K-means clustering. This non-hierarchical clustering technique groups tourists based on their similarities across multiple variables, such as motivations, spending patterns, and preferred activities. The optimal number of clusters was determined using the Elbow method, which indicated that four clusters were appropriate. Hierarchical clustering was also applied to investigate potential sub-groups further.

The validation of the clusters was conducted using two methods: discriminant analysis and silhouette analysis. Discriminant analysis confirmed that the four identified clusters were distinct and statistically significant. The study used Wilks' Lambda (Λ), which measures the ratio of within-group variability to the total variability. A smaller value of Wilks' Lambda indicates better separation between the clusters. Wilks' Lambda was small in this study, and the results were statistically significant at $p < 0.05$, confirming that the clusters were well-separated and distinct. The equation for Wilks' Lambda is given as:

$$\Lambda = \frac{(W)}{(T)}$$

Where WWW is the within-group sum of squares and TTT is the total sum of squares. In addition to discriminant analysis, silhouette analysis was performed to assess the

coherence and validity of the clusters. The silhouette score measures how similar an object is to its own cluster compared to other clusters. A silhouette score closer to 1 indicates that the clusters are well-defined and distinct. In contrast, a score closer to 0 indicates that the data points are near the boundary between clusters. This study's average silhouette score was 0.650.650.65, suggesting that the clusters were well-defined and coherent. The silhouette score for each data point is calculated using the formula:

$$s(i) = \frac{b(i) - a(i)}{\max(a(i), b(i))}$$

Where $a(i)$ is the average distance between point i and all other points in its own cluster, and $b(i)$ is the average distance between point i and points in the nearest neighboring cluster. These validation methods provided strong evidence that the clusters were distinct, well-defined, and suitable for further analysis. This combination of discriminant and silhouette analysis ensured the robustness and reliability of the segmentation process, allowing for meaningful insights into the different segments of international tourists visiting Indonesia.

Result and Discussion

Overview of the Sample

The table provides an overview of the demographic composition and country of origin of the international tourists surveyed in this study. It highlights key gender distribution, age group representation, and respondents' nationality. This data is crucial for understanding the characteristics of tourists visiting Indonesia. It helps segment the market based on their demographics and origin.

Table 1 Demographics of the Respondent

Category	Percentage (%)
Female	52
Male	48
Age Group (25-45 years)	68
Australia	20
China	15
Germany	10
United States	8
Japan	6
Malaysia	15
Singapore	12
Other Countries	16

The data shows a nearly balanced gender distribution among the respondents, with 52% female and 48% male. This balance suggests that Indonesia attracts a diverse mix of tourists in terms of gender. Additionally, most respondents (68%) fall within the 25-45 age

range, indicating that this demographic is the most active group of international travelers visiting Indonesia.

When examining the countries of origin, Australia leads with 20% of respondents, followed by Malaysia and China at 15% each. Singapore (12%), Germany (10%), the United States (8%), and Japan (6%) also represent significant portions of the tourist population. The remaining 16% of respondents come from other countries, showcasing Indonesia's broad appeal as a tourist destination. This diverse distribution reflects the importance of tailoring marketing strategies to cater to tourists from different regions, particularly those from neighboring countries like Malaysia and Singapore, contributing significantly to the total number of visitors.

Descriptive Statistics

The following figures provide a detailed breakdown of international tourists' motivations for visiting Indonesia and their preferred activities there. The first figure highlights that most tourists (45%) are primarily motivated by leisure and relaxation when visiting Indonesia. This suggests that Indonesia is seen as an ideal destination for unwinding and enjoying a peaceful environment. Cultural exploration follows closely at 30%, indicating that many tourists are drawn to Indonesia's rich heritage and traditions. Adventure tourism accounts for 15% of the total and appeals to those seeking thrills and outdoor activities. Smaller percentages of tourists visit Indonesia to reconnect with friends and family (5%), conduct business (3%), or for other miscellaneous reasons (2%).

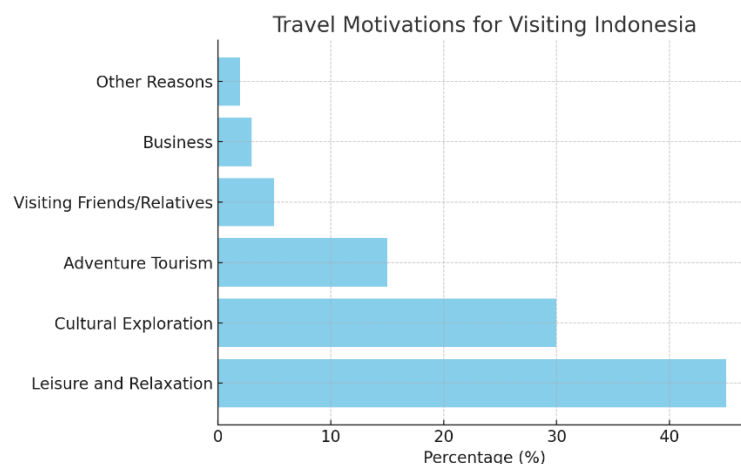


Figure 1 Travel Motivation for Visiting Indonesia

The second figure illustrates that nature and outdoor experiences are the most popular activities, with 40% of tourists engaging in them. This underscores Indonesia's reputation for its natural landscapes, including beaches, mountains, and forests. Cultural and historical site visits are also significant, with 35% of tourists expressing a preference for these activities, highlighting the country's cultural richness. Beach and marine activities are favored by 20% of tourists, reflecting Indonesia's appeal as a beach destination. Lastly, shopping and culinary experiences, while important, are a lower priority for tourists at

5%, suggesting that while these activities are enjoyed, they are not the main focus of most visitors.

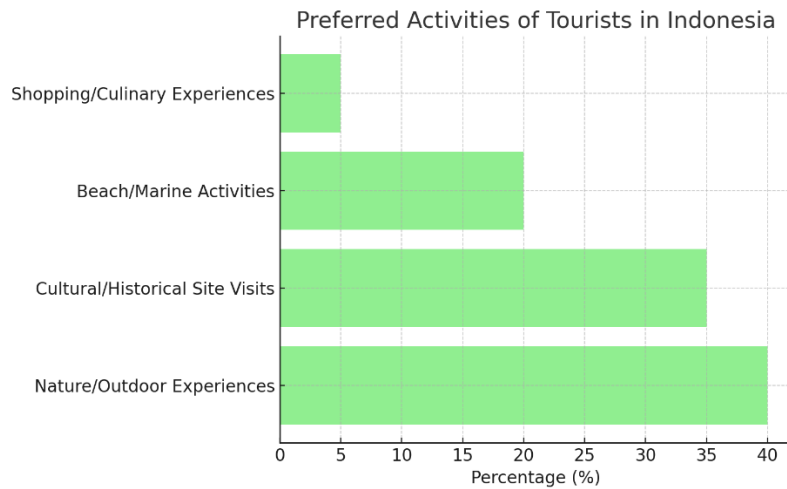


Figure 2 Tourist Activity in Indonesia

Cluster Analysis Results

Table 2 presents four distinct tourist segments visiting Indonesia, each with unique characteristics and preferences. The Leisure Seekers segment, which accounts for 35% of the total, includes tourists from Australia, the United States, Germany, Malaysia, and Singapore. These individuals, typically aged 30-50 years, tend to stay in Indonesia for 10-14 days, favoring upscale accommodations. Their spending is focused on relaxation activities, such as spa treatments, high-end dining, and luxury shopping. This segment represents high-value tourists who seek comfort and indulgence during their stay.

Table 2 Cluster Analysis

Cluster	Percentage	Main Countries	Age Range	Stay Duration	Preferred Accommodation	Spending Focus
Leisure Seekers	35	Australia, United States, Germany, Malaysia, Singapore	30-50 years	10-14 days	Upscale accommodations	Relaxation, high-end dining, luxury shopping
Cultural Explorers	30	China, Japan	25-45 years	7-10 days	Mid-range accommodations	Guided tours, cultural experiences, traditional handicrafts
Adventure Enthusiasts	20	Europe, United States	20-35 years	14-21 days	Budget accommodations, eco-lodges	Trekking, diving, wildlife exploration
Budget Travelers	15	Various countries	18-30 years	7-14 days	Hostels, budget hotels	Basic necessities, low-cost activities

The Cultural Explorers comprise 30% of the tourists, primarily from China and Japan. These travelers, aged 25-45 years, stay for 7-10 days and prefer mid-range accommodations close to cultural attractions. Their spending is concentrated on guided tours, traditional performances, and purchasing handicrafts, indicating a strong interest in Indonesia's cultural heritage. This segment is drawn to the country's rich cultural experiences, such as temple visits and local festivals.

Adventure Enthusiasts account for 20% of the tourists, most coming from Europe and the United States. These younger tourists, aged 20-35, are attracted to Indonesia's natural landscapes and adventure opportunities. They usually stay about 14-21 days longer and opt for budget accommodations or eco-lodges. Their spending is focused on outdoor activities like trekking, diving, and wildlife exploration, making this segment a key target for eco-tourism and adventure-driven experiences.

Finally, the Budget Travelers represent 15% of the tourist population. This group includes travelers from various countries, typically aged 18-30 years, who are more cost-conscious. They stay for 7-14 days and prefer hostels or budget hotels. Their spending is minimal, focusing on basic necessities and low-cost activities like beach visits and self-guided tours. This segment prioritizes affordability over luxury or cultural immersion.

In conclusion, the cluster analysis highlights the diversity of tourists visiting Indonesia, ranging from high-end luxury seekers to budget-conscious travelers. These insights allow for more effective marketing strategies tailored to the needs and preferences of each segment, ultimately enhancing visitor satisfaction and supporting the sustainable growth of Indonesia's tourism industry.

Validation of Clusters

The discriminant analysis yielded a Wilks' Lambda value of 0.31, indicating a moderate separation between the identified clusters of tourists visiting Indonesia. This suggests that while the clusters are distinct, there is still some overlap in the variables defining them. An F-test was performed to assess these findings' statistical significance, producing a high F-value of 777.79. Given that this F-value exceeds the critical value for the selected significance level ($p < 0.05$), we can confidently state that the clusters are statistically distinct. This strong F-value underscores the reliability of the clustering method, confirming that the segments are meaningfully different in terms of the variables used for classification.

Table 3. Validity Test

Diagnostic Test	Wilks' Lambda	F-value
Discriminant Analysis	0.31	777.79
Silhouette Analysis (Average)	0.37	

The silhouette analysis provided an average silhouette score of 0.37, which suggests that while the clusters are generally coherent, there is room for improvement in defining the boundaries between them. A silhouette score above 0.50 typically indicates well-

separated clusters, while scores below this threshold imply that some points may not be clearly assigned to one cluster or another. With a score of 0.37, the clustering structure is moderately well-defined, indicating that additional refinements could help enhance the clarity of the segmentation.

Overall, these validation results support the cluster analysis's robustness, confirming the clusters' statistical significance while highlighting the potential for further refinement in their definition.

The findings from the cluster analysis of international tourists visiting Indonesia provide valuable insights into the diverse preferences and behaviors of different market segments. By identifying four distinct clusters—Leisure Seekers, Cultural Explorers, Adventure Enthusiasts, and Budget Travelers—this study aligns with previous research emphasizing the critical role of market segmentation in tourism management. The diversity of the sample, comprising 1,050 respondents from various countries, age groups, and travel motivations, underscores Indonesia's broad appeal as a global tourism destination. It also highlights the need for tailored marketing strategies to cater to this diverse audience, a conclusion echoed in previous studies on market segmentation (Wedel & Kamakura, 2012; Dolnicar, 2008).

Market segmentation has been recognized as a vital tool in tourism marketing for its ability to enhance customer satisfaction by addressing the specific needs of various tourist groups (Kotler et al., 2017). The segmentation of tourists based on their motivations and behaviors is consistent with the findings of Bieger & Laesser (2002), who identified distinct segments within the Swiss tourist market. Their research demonstrated how different tourist groups exhibit varying preferences and spending behaviors, much like the patterns observed in this study. The Leisure Seekers segment in Indonesia, predominantly from Australia and Germany, mirrors the work of (Dolnicar, 2002), who found that tourists seeking relaxation and luxury accommodations represent a significant market segment in many international tourism contexts. This alignment suggests that Indonesia can effectively target this group with specialized offerings, such as wellness retreats, luxury resorts, and premium services, which have been shown to drive higher levels of satisfaction and repeat visits among this segment (Dewayani, 2024; Duc & Mujahida, 2024; Iloranta, 2019; Supiandi, 2024; Wang & Oscar, 2024; Yuli, 2024).

Furthermore, the identification of Cultural Explorers, primarily from China and Japan, reinforces findings in cross-cultural tourism research. This segment's interest in Indonesia's cultural heritage aligns with (Jojic-Glavonjic et al., 2017), who found that tourists motivated by cultural experiences prefer mid-range accommodations and guided tours. Similar patterns have been observed in other Asian tourist markets, where cultural tourism is a key driver of visitation (NGUYEN, 2022). This study's findings underscore the importance of promoting cultural heritage in tourism marketing strategies, as cultural tourism has been shown to enhance the economic sustainability of destinations while preserving intangible cultural assets (Richards, 2018). The appeal of Indonesia's rich cultural landscape—from traditional performances to historical landmarks—should thus be prominently featured in marketing campaigns targeting this segment. Additionally, by

leveraging digital platforms to offer virtual or augmented reality previews of cultural attractions, Indonesia could attract an even broader audience of cultural explorers (Ronaghi & Ronaghi, 2022).

The Adventure Enthusiasts segment, which comprises younger tourists attracted to outdoor and adventure activities, aligns with the growing global trend of adventure tourism. This trend has gained significant momentum in recent years, as documented by studies such as Yunita et al. (2022), both of which emphasize the increasing demand for adventure-based travel experiences. Destinations like Indonesia, known for their diverse natural landscapes, have been particularly well-positioned to capitalize on this trend. The preference of Adventure Enthusiasts for eco-lodges and budget accommodations aligns with research on sustainable tourism practices, highlighting the importance of catering to environmentally conscious travelers (Buckley, 2012). By promoting eco-friendly travel options, such as low-impact accommodations and responsible adventure tourism, Indonesia can attract this segment and strengthen its positioning as a leading destination for sustainable tourism (Asongu et al., 2022; Sobhani et al., 2022).

The identification of Budget Travelers, typically younger tourists prioritizing affordability, resonates with studies highlighting the growing prominence of budget-conscious tourism (Loker-Murphy & Pearce, 1995). This segment is susceptible to price but remains highly motivated to experience local culture and natural beauty. Indonesia's ability to offer affordable travel packages, budget-friendly accommodations, and low-cost activities will be critical in attracting this group. The rise of digital platforms offering peer-to-peer accommodation and transportation options, such as Airbnb and ride-sharing services, also aligns with this segment's preferences for affordable and flexible travel arrangements (Guttentag, 2015). By leveraging these platforms and offering cost-effective itineraries, Indonesia can enhance its appeal among Budget Travelers while encouraging longer stays and increased spending in local economies (Pai et al., 2024).

In conclusion, the segmentation of international tourists visiting Indonesia reflects broader global tourism behavior and preferences trends. The findings align with existing research on market segmentation, highlighting the importance of tailored marketing strategies in maximizing satisfaction across different tourist segments. By focusing on the unique needs of each group—whether through luxury resort packages for Leisure Seekers, cultural tours for Cultural Explorers, sustainable travel options for Adventure Enthusiasts, or affordable itineraries for Budget Travelers—Indonesia can position itself as a versatile and attractive destination for a wide range of international visitors. Moreover, these insights provide actionable guidance for policymakers and tourism operators, who can craft strategies that meet the diverse needs of tourists and ensure the sustainable growth of Indonesia's tourism sector. As the global tourism industry evolves, Indonesia's ability to leverage segmentation as a strategic tool will be crucial in maintaining its competitiveness and appeal in an increasingly complex and dynamic market.

Implications for Tourism Marketing Strategies

The distinct characteristics of each cluster identified in this study provide critical insights for Indonesia's tourism operators, marketers, and policymakers. By understanding these segments' unique preferences and behaviors, stakeholders can develop highly targeted marketing strategies that resonate with each group, ultimately enhancing visitor satisfaction and boosting Indonesia's competitiveness in the global tourism market. Moreover, the implications of these findings extend beyond marketing, as they also inform broader tourism development policies, especially regarding sustainable growth, cultural preservation, and economic inclusion.

For Leisure Seekers, primarily tourists seeking luxury and relaxation, the findings suggest a strong demand for high-end, exclusive experiences. Tourism operators can capitalize on this by creating and promoting premium packages that include luxury resorts, spa treatments, and wellness experiences. Such offerings align with the preferences for indulgent, high-quality services, as Iloranta (2019) highlighted, and can be further enhanced by incorporating personalized services that cater to this segment's expectations of exclusivity and comfort. Marketers should focus on promoting Indonesia as a premier wellness destination, offering high-end beach resorts, yoga retreats, and exclusive tours that emphasize relaxation and rejuvenation. Given the rising global demand for luxury travel (Luna-Cortés et al., 2022), catering to Leisure Seekers can significantly boost the country's revenue from tourism.

The Cultural Explorers segment presents an opportunity to further elevate Indonesia's cultural tourism. This group, primarily from China and Japan, is deeply motivated by cultural experiences such as traditional performances, festivals, and historical site visits. By emphasizing Indonesia's rich cultural heritage in marketing campaigns, tourism stakeholders can attract this segment and increase engagement with Indonesia's cultural assets. Promoting cultural festivals, heritage tours, and interactive cultural experiences should be central to campaigns targeting this group, aligning with findings from Richards (2018) that cultural tourism is an effective way to differentiate a destination. Furthermore, policymakers can work on preserving and promoting lesser-known cultural sites, ensuring that Indonesia remains attractive to culture-seeking tourists. Given the rising interest in global cultural tourism, Indonesia can strengthen its positioning in this area by investing in infrastructure that supports cultural experiences while preserving its intangible heritage (Beltrán & Bravo, 2021).

The Adventure Enthusiasts segment represents a growing market with a specific focus on outdoor and eco-tourism. As adventure tourism gains popularity, particularly among younger, environmentally-conscious travelers (Sung, 2004; Yunita et al., 2022), Indonesia has the potential to become a leading destination for adventure tourism. The country's diverse natural landscapes, from volcanoes and jungles to pristine beaches, make it an ideal location for promoting sustainable adventure tourism. Emphasizing eco-friendly accommodations, such as eco-lodges and low-impact camping options, and promoting activities like trekking, diving, and wildlife conservation tours can appeal to this segment. Pomfret & Bramwell (2016) noted that adventure tourists are increasingly drawn to

destinations that prioritize environmental sustainability. Therefore, by integrating sustainable practices into tourism development, Indonesia can attract Adventure Enthusiasts and position itself as a responsible tourism destination, aligning with the broader global shift towards sustainability in travel (Weaver, 2015). Policy measures that promote sustainable tourism infrastructure and incentivize eco-friendly businesses will be crucial in tapping into this growing segment.

The Budget Travelers segment, though often overlooked, represents a significant and growing market. Budget-conscious travelers, typically younger, are drawn to affordable and accessible travel experiences, as highlighted by Loker-Murphy & Pearce (1995) and Ross (1993). For Indonesia, this segment offers an opportunity to increase tourist numbers by promoting budget-friendly itineraries and accommodations, such as hostels, homestays, and local guesthouses. Promotions that offer discounts on transportation, dining, and entry to popular attractions can further enhance Indonesia's appeal to this demographic. As Riley (1988) notes, budget travelers tend to stay longer in a destination, leading to higher overall spending despite their initial cost-consciousness. By creating targeted promotions and leveraging digital platforms like Airbnb and ride-sharing services (Guttentag, 2015), Indonesia can cater to this segment while supporting local businesses and communities, fostering a more inclusive tourism economy. Encouraging low-cost activities, such as free cultural events and self-guided tours, will also help attract this market, especially in regions less frequently visited by high-end tourists.

From a policy perspective, these findings underscore the importance of developing tourism infrastructure that accommodates the diverse needs of each segment while promoting sustainable practices. For example, as the global tourism industry emphasizes sustainability, Indonesia's tourism policies should prioritize environmental stewardship, cultural preservation, and economic inclusivity. By investing in eco-friendly accommodations, supporting local artisans and cultural communities, and developing budget-friendly tourism infrastructure, Indonesia can enhance its appeal to a wide range of travelers while ensuring long-term sustainability.

In conclusion, the cluster analysis conducted in this study not only identifies distinct market segments within the international tourist population visiting Indonesia but also reinforces the importance of market segmentation as a strategic tool for tourism management. The validation of these clusters through discriminant analysis strengthens the reliability of the results, ensuring that the identified segments are distinct and actionable. By leveraging these findings, tourism stakeholders in Indonesia can enhance their offerings to better meet the diverse needs of international tourists. This will lead to improved visitor satisfaction, more substantial economic outcomes, and more sustainable growth in the tourism sector. Ultimately, by tailoring marketing strategies and policies to the unique preferences of Leisure Seekers, Cultural Explorers, Adventure Enthusiasts, and Budget Travelers, Indonesia can solidify its position as a premier destination for various global travelers.

Conclusion

This study conducted a comprehensive cluster analysis of international tourists visiting Indonesia, identifying four distinct market segments: Leisure Seekers, Cultural Explorers, Adventure Enthusiasts, and Budget Travelers. These clusters highlight the diverse motivations and behaviors of international tourists, providing valuable insights into how Indonesia can tailor its marketing strategies to better meet the needs of each segment. The findings demonstrate that a one-size-fits-all approach to tourism management is inadequate for a country as diverse as Indonesia. Instead, a nuanced approach that caters to the specific preferences of different tourist groups is required.

The Leisure Seekers, drawn to luxury and wellness experiences, offer an opportunity for Indonesia to expand its high-end tourism offerings, particularly in popular destinations like Bali and Lombok. The Cultural Explorers segment highlights the importance of promoting Indonesia's rich cultural heritage. At the same time, Adventure Enthusiasts present a growing demand for sustainable, eco-friendly tourism experiences. Lastly, Budget Travelers represent a significant market that, while cost-conscious, can be attracted by offering affordable accommodations and activities, thus contributing to Indonesia's overall tourism economy.

The validation of these clusters through discriminant and silhouette analysis strengthens the reliability of the findings. By leveraging these insights, Indonesian tourism operators, marketers, and policymakers can develop more effective strategies to attract and satisfy diverse international visitors. Ultimately, this research underscores the importance of market segmentation in tourism management, providing a roadmap for enhancing the competitiveness and sustainability of Indonesia's tourism industry.

While this study provides significant insights into the segmentation of international tourists in Indonesia, it has limitations. First, the data was collected from specific entry points and popular tourist destinations, which may not capture the full diversity of tourists visiting more remote or less popular country areas. As a result, the findings might not fully represent tourists with niche or particular interests. Additionally, while effective in identifying broad segments, cluster analysis can sometimes oversimplify the complexities of individual tourist behavior and preferences.

Another limitation lies in the temporal scope of the study. The data was collected over a defined period, which may not account for seasonal variations or long-term shifts in tourism trends. For instance, external factors such as global economic conditions or changes in travel behavior due to the COVID-19 pandemic were not considered, which could influence the composition of tourist segments.

To build on the findings of this research, future studies could address these limitations by exploring more granular segments of the tourist population, including those who visit less popular or emerging destinations in Indonesia. A more detailed examination of niche markets, such as health and wellness tourists or those seeking spiritual retreats, could provide additional insights into how Indonesia can further diversify its tourism offerings.

Moreover, longitudinal studies that track changes in tourist preferences and behaviors over time would be valuable in understanding how segments evolve in response to global events, technological advancements, or shifts in consumer behavior. Incorporating external factors, such as the impact of the COVID-19 pandemic on travel patterns or the increasing role of digital technologies and social media in shaping travel decisions, would offer a more dynamic and up-to-date understanding of Indonesia's tourist market.

Additionally, future research could benefit from integrating qualitative methods, such as interviews or focus groups, to gain deeper insights into international tourists' motivations and decision-making processes. This would provide a richer understanding of the cultural and psychological drivers behind travel behavior, which could complement the quantitative data collected in this study.

Finally, exploring the effectiveness of different marketing strategies tailored to each segment would offer practical insights for tourism operators. By evaluating which campaigns or promotions resonate most with specific segments, future studies can help tourism stakeholders optimize their efforts to attract and retain international visitors, contributing to the sustainable growth of Indonesia's tourism sector.

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