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UNDERSTANDING CLUSTER DIFFERENCES IN REGIONAL TOURISM PERCEPTIONS: ANOVA, PRUNED TREE, AND CORRELATION NETWORK ANALYSIS FROM THE MEKONG DELTA REGION

Nguyen Phu Thang[*1] and Le My Dung[2]
[1]*Faculty of History, Geography, and Political Science, University of Science and Education, University of Da Nang, Da Nang city, Vietnam*
[2]*Faculty of Geography, Hanoi National University of Education, Ha Noi city, Vietnam*

[*]Corresponding author: Nguyen Phu Thang, e-mail: npthang@ued.udn.vn

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Abstract. This research explores perceptual differences among tourist clusters to examine regional tourism linkage in the Mekong Delta, Vietnam. Building on prior perception-based segmentation, we re-estimate clusters with higher granularity (k = 3) and statistically validate differences across 25 variables using one-way ANOVA. A pruned decision tree clarifies the minimal set of cues that separates segments, while a correlation-network analysis visualizes how governance, cultural experience, and environmental attributes co-organize in tourists' mental models. The results indicate 23 variables with significant mean differences ($p < 0.001$), with governance signals (policy coherence, partnership mechanisms) and cultural events emerging as dominant discriminators. This paper contributes by connecting perception-based segmentation with statistical verification, providing evidence-based outcomes for specific regional tourism strategies. The findings emphasize the significance of symbolic and structural characteristics in influencing tourist perceptions of interprovincial cooperation.

Keywords: Cluster, regional tourism perceptions, correlation analysis, Mekong Delta.

1. Introduction

Knowing how tourists perceive regional tourism linkages is central to the development of effective destination strategies, especially in areas distinguished by complex administrative structures, like the Mekong Delta in Vietnam. While earlier research has increasingly employed perception-based segmentation to uncover latent tourist typologies [1]. The empirical verification of such clusters using stringent statistical procedures remains underdeveloped. To enhance both theoretical accuracy and practical applicability, it is necessary not only to identify perceptual clusters but also to determine whether these groupings signify meaningful distinctions in how tourists evaluate key regional attributes.

The Mekong Delta, as an area with significant interprovincial tourism potential, provides a best-case scenario for investigating this verification process. Despite national-level policies that call for regional coordination [2], the current reality remains fragmented, with differences in the quality of infrastructure, governance alignment, and stakeholder collaboration [3],[4]. These disparities not only hinder service delivery but also shape tourists' impressions of the destination's

integration and coherence. Scholars have noted that, alongside physical connectivity, perceptions of cultural continuity, institutional cooperation, and shared identity increasingly shape visitor satisfaction and engagement [5],[6]. The Mekong Delta's tourism develops under compound stressors current salinity intrusion and flooding, livelihood shifts and out-migration of young labor, and the heightened vulnerability of riparian and ethnic communities. These structural pressures interact with multi-level governance, shaping the signals tourists read about regional coherence. We therefore frame tourist perception not only as a reaction to attractions, but also as a barometer of how well provinces coordinate under climate and social stress a lens critical for both destination strategy and public policy.

To provide the robustness of cluster analysis in identifying these perceptual differences, this study uses one-way ANOVA and decision tree classification to validate the statistical validity of a priori tourist segments i.e., Supporters, Neutrals, and Skeptics. Although clustering techniques like Hierarchical Cluster Analysis (HCA) are useful for unveiling latent segments, inferential methods must be used to verify if clusters differ on important dimensions like the appeal of cultural events, interprovincial policy coherence, or actual travel mobility [7], [8].

Furthermore, the network correlation analysis is used in this research to investigate the internal relationships among 25 perception variables. Revealing strong inter-variable connections, especially in policy and cultural dimensions, this exploratory strategy contributes additional knowledge about the structural rationale of tourist assessment. Triangulation of methodologies enhances the reliability of the segmentation model and its usability in regional tourism management.

This study makes a meaningful contribution to tourism research by combining perceptual segmentation with statistical verification. This ensures that the findings offer practical implications for destination managers seeking to develop strategies based on tourists' experiences and judgments regarding the integrity of multi-provincial tourism products.

2. Content

2.1. Literature review

Tourist perception has become a central lens in regional tourism studies, extending segmentation beyond static demographics toward how visitors cognitively–affectively read system signals of a destination [10]. Prior works emphasize that fragmented coordination and inconsistent policies reduce brand coherence and weaken tourists' confidence in inter-provincial travel, especially in multi-province settings comparable to the Mekong Delta [1], [4], [6], [10]. Building on destination image and creative/experiential perspectives, scholars show that cultural events and lived experiences shape supportive evaluations, but their effects depend on credible governance cues and service reliability [5], [6].

Lessons from ASEAN corridor initiatives and EU macro-regional programs reveal that practical instruments like joint calendars, shared passes, and interoperable systems act as tools of coordination, reinforcing a region's perceived unity; in contrast, fragmented policies weaken its image and restrict movement across provinces [10]. Methodologically, perception-based segmentation is commonly detected with hierarchical clustering and validated via one-way ANOVA to confirm mean differences across evaluation variables [7]; decision-tree models add interpretability by revealing a minimal, hierarchically ordered set of discriminators that predict segment membership [8]. Recent studies further argue that tourists perceive bundles of attributes, e.g., festivals alongside stakeholder collaboration, suggesting the value of correlation-network approaches to expose clusters and bridging ties among infrastructure, governance, culture, and space [9], [5], [6].

However, the literature remains fragmented: few studies integrate governance visibility with event salience in a single theoretical model, and even fewer triangulate clustering, inferential testing, predictive rules, and inter-variable networks. Addressing this gap, the present study operationalizes a six-dimensional framework (INF, POL, NAT, HUM, GEO, LINK) and tests a governance-moderation pathway using HCA, ANOVA, a pruned decision tree, and correlation-network analyses.

2.2. Research area and methods

2.2.1. Research area

The Mekong Delta is a critical case study for analyzing regional tourism linkages in Vietnam's southern regions, particularly in transitional and multi-provincial contexts. The Mekong Delta comprises five provinces and cities, which together form the region, as stated in Resolution 60-NQ/TW 2025. This area is rich in diverse natural resources and cultural heritage, and is strategically located near the Cambodian border. Despite these strengths, the Delta region faces challenges like fractured tourism development due to erratic policy execution, infrastructural gaps, and a lack of inter-institutional collaboration [5], [11].

This fragmentation has led to significant variation in tourists' perceptions of interprovincial collaboration, policy alignment, and the overall coherence of the destination. While some provinces, such as Can Tho and An Giang, have made strides in cross-border tourism initiatives, others lag in terms of planning integration and branding consistency. These spatial and administrative inconsistencies make the Mekong Delta an ideal setting for examining whether tourists differentiate between levels of regional linkage, and how these perceptual differences can be statistically validated.

In addition, the region's socio-cultural heterogeneity, comprising Kinh, Khmer, and Hoa ethnic groups, offers a unique environment for examining cultural-human factors such as event attractiveness and heritage continuity. With its multi-forked river systems, floating markets, wetland ecosystems, and community-based tourism models, the Mekong Delta embodies both opportunities and challenges in crafting an integrated tourist experience. Therefore, it offers a rich ground for employing quantitative tools like ANOVA and decision tree analysis to verify how tourists view regional integration in both symbolic and functional terms.

2.2.2. Research methods

A total of 300 valid responses were collected through stratified random sampling to ensure representation across age, occupation, and education groups. The sample comprised 50.7% male and 49.3% female respondents. The survey sample consisted mainly of young and middle-aged participants. Most respondents were between 26–35 years old (40%), followed by those aged 36–45 (28%), and under 25 (26%), while only 6% were over 46. In terms of occupation, office workers (26%) and government officials (24%) made up the largest groups, followed by business owners (18%), students (14%), and others (18%). Regarding education, the majority held a bachelor's degree (56%), and 10% had a high school education or below. Reliability analysis indicated that all constructs exceeded the recommended Cronbach's alpha threshold of 0.70 (ranging from 0.78 to 0.91). Sampling adequacy for the measurement model was confirmed (KMO = 0.923; Bartlett's $\chi^2 = 4217.6$, $p < 0.001$), demonstrating satisfactory internal consistency and validity.

This study builds upon the results of a prior Hierarchical Cluster Analysis (HCA) that segmented tourists into three clusters: Supporters, Neutrals, and Skeptics based on 25 perceptual variables relating to regional tourism linkage in the Mekong Delta (Table 1). The set of 25 indicators was developed by synthesizing previous studies on tourist perception, regional tourism linkage, and destination image, and adapting them to the socio-cultural and environmental characteristics of the Mekong Delta. These variables represent six conceptual dimensions (INF,

POL, NAT, HUM, GEO, and LINK) that comprehensively capture the cognitive structure through which tourists evaluate inter-provincial tourism connectivity. Their inclusion was further validated through correlation and reliability analyses, ensuring conceptual distinctiveness and statistical robustness of the measurement framework. To validate these clusters, the present study applies one-way ANOVA to test for significant differences in variable means across the three groups (Table 2). Variables with p-values less than 0.05 are considered statistically discriminative.

Table 1. The variable of research

Indicators	**Coded**	**Description**
Infrastructure (INF)	*INF_1*	The electricity and water infrastructure among provinces is connected and supports joint tourism development.
	INF_2	Inter-provincial transportation systems are convenient for tourists to travel between destinations.
	INF_3	Information technology systems effectively support inter-provincial tourism connectivity (e.g., tour integration, digital platforms).
Policy (POL)	*POL_1*	Localities have aligned policies for tourism infrastructure development across the region.
	POL_2	Investment policies promote collaborative tourism development rather than isolated efforts.
	POL_3	There are joint regional tourism promotion programs (e.g., branding and campaigns for the Mekong Delta).
	POL_4	Policies encourage enterprises to collaborate in developing inter-provincial tourism products and services.
	POL_5	There is a clear tourism development master plan for regional linkages between provinces.
	POL_6	Local governments cooperate in building and managing shared tourism routes.
Natural resources (NAT)	*NAT_1*	Natural landscapes provinces share similarities and complement regional tourism development.
	NAT_2	Flood season landscapes can be developed into inter-provincial tourism routes.
	NAT_3	Provinces coordinate to jointly utilize ecosystems (e.g., Melaleuca forests, river systems) for tourism purposes.
	NAT_4	Wetland ecosystems are a common link between localities.
	NAT_5	The climate is suitable for linkages between localities.
Human resources (HUM)	*HUM_1*	Cultural and religious festivals have the potential to be developed into inter-provincial tourism products.
	HUM_2	Historical and cultural sites across provinces are connected to inter-provincial tourism routes.
	HUM_3	Handicraft villages and ethnic communities are being linked to create diverse regional tourism offerings.

	HUM_4	The tourism workforce can be mobilized and coordinated across regions to enhance visitor experiences.
	HUM_5	Events in tourism have advantages and attractiveness for tourism in inter-provincial tourism routes.
Geography and location (GEO)	*GEO_1*	Mekong Delta serves as a central hub or gateway in regional tourism development.
	GEO_2	The number of tourists traveling to provinces has steadily increased.
	GEO_3	Transportation routes linking the provinces to administrative centers in other provinces support convenient tourist movement.
Linkages in the region (LINK)	*LINK_1*	Local governments, enterprises, and communities in the region effectively collaborate in developing tourism linkages.
	LINK_2	The number of tourists traveling between provinces has steadily increased.
	LINK_3	Inter-provincial coordination bodies/protocols operate regularly.

To complement the ANOVA results, a decision tree classifier (CART) is employed to model the hierarchical logic tourists may use in forming their perceptions. The decision tree identifies which variables (e.g., HUM_5 or POL_5) are most influential in predicting segment membership through a series of binary splits. This approach enhances the interpretability of the segmentation and provides actionable thresholds for tourism managers.

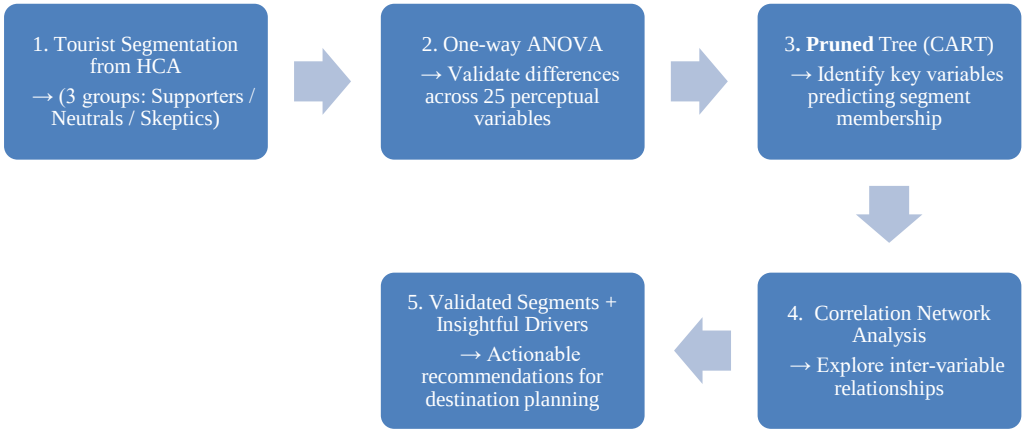

Figure 1. The research process

Finally, a correlation network analysis is constructed to examine the internal relationships among the 25 variables. By triangulating results from ANOVA, the decision tree, and correlation analysis, this study reinforces the robustness of the perceptual segments and offers a richer foundation for destination planning. Prior studies list ANOVA/decision-tree uses but seldom triangulate and translate them into conversion strategies for skeptical segments. We fill this gap by (i) increasing cluster granularity (k=3), (ii) using a pruned tree to stress decision logic, and (iii) replacing sole correlation matrices with network correlation analysis that reveals attribute blocks and actionable bridges.

2.3. Results and Discussion

2.3.1. Results

- ANOVA and Pruned Decision Analysis: Statistical validation of Cluster differences

To statistically verify whether the three perceptual segments identified through Ward HCA represent substantively different evaluation logics rather than cosmetic clustering artifacts, a one-way ANOVA was performed on all 25 perception items, with the cluster membership (k = 3) used as the grouping variable (Table 2). This procedure tests the null hypothesis that the mean score of each item is equal across the three clusters, thereby allowing us to determine whether the segmentation reflects true attitudinal heterogeneity at the item level.

The results indicate a strong rejection of the null hypothesis for 23 out of 25 variables at $p < 0.001$, confirming that the clusters are not only visually separable in the perceptual space but also statistically distinct in terms of their individual evaluation patterns. This level of significance is noteworthy given the perceptual nature of the variables, where effect sizes are often subtle and multidimensional.

The discriminating power of each variable is ranked using the F-statistic, which expresses the variance between clusters relative to the variance within clusters. The ten highest-ranking items, listed in Table 2, are dominated by indicators related to policy clarity (POL), inter-provincial linkage mechanisms (LINK), and cultural programming (HUM). Items related to natural resources (NAT) and geography (GEO) appear lower in the ranking, suggesting that governance signals differentiate tourists more strongly than inherent destination attributes. The fact that governance-related variables dominate the discriminating set reinforces the proposition that tourists implicitly evaluate regional destinations not only through tangible experience (e.g., scenery, attractions) but also through signals of institutional coordination, policy coherence and cross-boundary cultural programming. This empirical pattern aligns with the network governance perspective, whereby "relational capacity" rather than physical inventory becomes the key perceptual marker of a functioning region.

Table 2. One-way ANOVA results on standardized data

Variable	F-Statistic	p-Value	Sig	Variable	F-Statistic	p-Value	Sig
LINK_1	120.56	<0.0001	***	INF_3	29.69	<0.0001	***
LINK_3	81.31	<0.0001	***	INF_2	27.29	<0.0001	***
POL_1	56.44	<0.0001	***	NAT_1	22.29	<0.0001	***
NAT_4	51.61	<0.0001	***	NAT_2	19.96	<0.0001	***
POL_2	49.22	<0.0001	***	INF_1	16.47	<0.0001	***
POL_3	48.48	<0.0001	***	GEO_3	3.16	0.0436	*
HUM_5	42.26	<0.0001	***	GEO_2	2.57	0.0781	ns
POL_6	42.04	<0.0001	***	GEO_1	2.11	0.1225	ns
POL_4	41.26	<0.0001	***	NAT_3	34.22	<0.0001	***
HUM_3	41.22	<0.0001	***	HUM_2	32.89	<0.0001	***
POL_5	39.76	<0.0001	***	HUM_1	32.11	<0.0001	***
HUM_4	37.39	<0.0001	***	NAT_5	31.18	<0.0001	***

Note. ANOVA computed on standardized variables (z-scores).

*Sig. codes: *** p < 0.001, ** p < 0.01, * p < 0.05, ns = non-significant.*

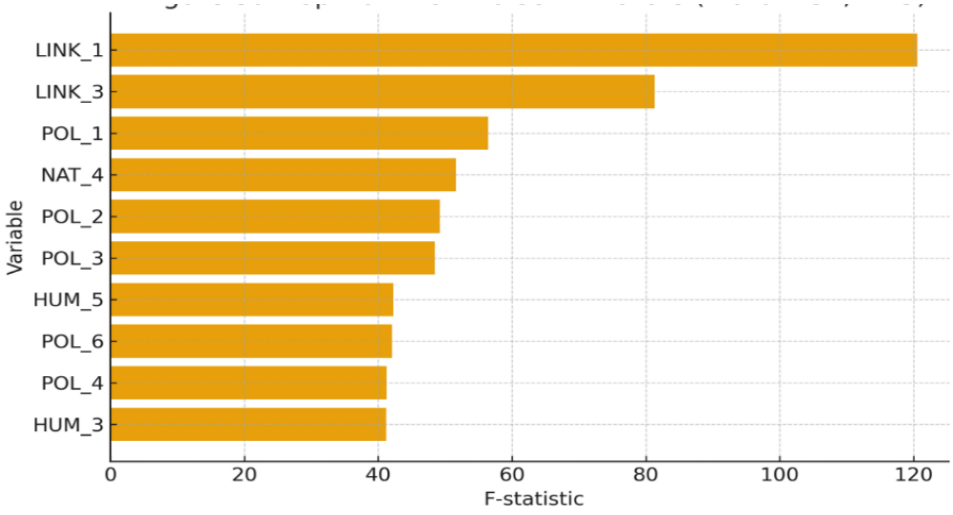

Figure 2. Top 10 ANOVA discriminators (Ward HCA, k=3)

Figure 2 illustrates the top-ranking variables, which are dominated by policy alignment (POL), partnership mechanisms (LINK), and cultural event salience (HUM). These results are consistent with the governance-oriented rationale of the segmentation, where perceptual differentiation was driven less by natural/endogenous attributes and more by signals of coordinated planning.

To further understand the underlying logic that separates tourist segments, a three-class decision-making classification was constructed using the cluster labels derived from the K-Means model. The tree, limited to a maximum depth of four for interpretability, revealed a clear and meaningful hierarchy of predictive variables (Figure 3).

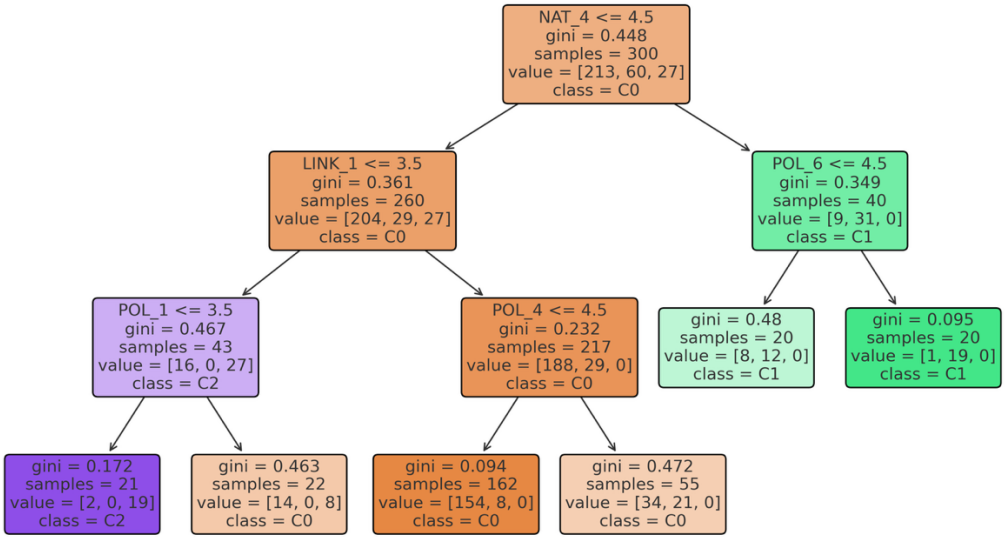

Figure 3. Pruned Decision Tree (Ward HCA labels, k=3)

The pruned decision tree in Figure 3 provides a parsimonious representation of the segmentation logic by identifying the smallest set of perceptual cues that can reproduce the three-cluster structure. The model places NAT_4 (valuation of natural assets) at the root node, indicating that a very high appreciation of natural resources (score > 4.50) is sufficient to classify most respondents into the Governance-Confident segment. This suggests that strong affective

attachment to the region's landscape is often accompanied by positive recognition of its institutional coordination.

For respondents whose evaluation of natural assets does not exceed this threshold, the next discriminating variables are LINK_1 (public–private partnership mechanisms) and POL_1 (perceived clarity of tourism infrastructure policy). When both indicators fall below their respective cut-points, cases are consistently routed to the Structure-Sensitive Skeptics, confirming that weak governance signals, not dissatisfaction with attractions, are the primary drivers of skepticism. In contrast, moderate-to-high values on either LINK_1 or POL_1 tend to produce assignments to the Balanced Moderates, a segment that expresses neither strong endorsement nor explicit doubt.

A secondary split involving POL_4 appears only after LINK_1 > 3.50, but both terminal nodes lead to the same class (Balanced Moderates), implying that policy adjustment is not a decisive discriminator once partnership mechanisms are already well-evaluated. This reinforces the hierarchical importance of the variables detected in the ANOVA ranking: governance-related items consistently outrank destination-intrinsic attributes in their explanatory power.

Overall, the tree confirms that segment membership is determined by a two-stage perceptual process: (1) affective valuation of the region's natural endowment, followed by (2) assessment of the credibility of its coordination architecture.

- Perceptual Architecture of Attributes: Correlation Network Analysis

Figure 4 presents a correlogram network that maps the associative structure among the 25 perception variables, retaining only edges with $|r| \geq 0.40$ to emphasize relationships of practical significance. Three coherent blocks emerge from the graph, reflecting the internal logic of how tourists cognitively organise the attributes of regional tourism linkage

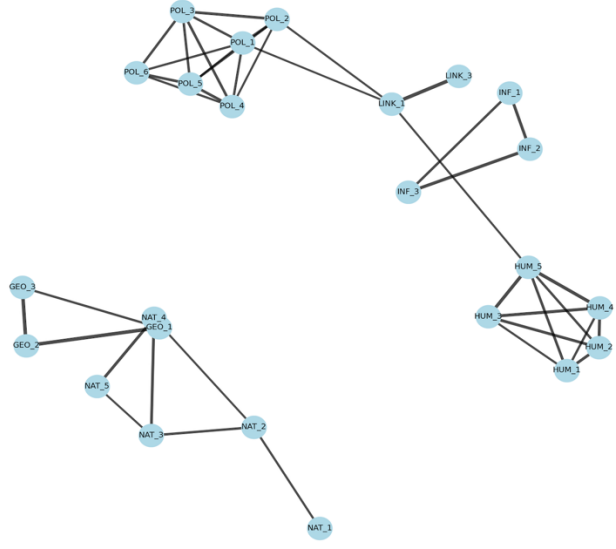

Figure 4. Pearson Correlation Matrix of the clusters

The first and most cohesive block consists of policy (POL) and linkage (LINK) variables, which are strongly interconnected (r up to 0.71). This indicates that respondents do not evaluate planning clarity, institutional coordination, or partnership mechanisms as isolated attributes; instead, they interpret them as a single governance signal. This dense connectivity helps explain why governance-related items ranked highest in both ANOVA and the CART tree.

The second block is centred on human–cultural experience (HUM) variables. Although internally correlated, this cluster is only selectively connected to POL/LINK items, suggesting that cultural programming is perceived as partially but not fully embedded within institutional arrangements. This finding supports the segment logic observed earlier: cultural attractiveness can elevate baseline satisfaction, but does not by itself shift tourists from moderate to supportive positions unless governance cues are also strong.

A third block is formed by natural and geographical attributes (NAT, GEO). These items correlate highly with each other but have few links to the POL/LINK cluster, reinforcing that environmental appeal is evaluated as a distinct dimension rather than a proxy for coordination quality. This separation mirrors the root split in the decision tree (Figure 3b), where NAT_4 is influential only when governance signals are already high.

Across all blocks, the absence of excessive cross-loading (all VIF < 4.0) confirms that the dataset contains dimensional structure rather than redundancy, validating its suitability for segmentation analysis. The correlogram, therefore, enriches the interpretation of Sections 4.1–4.2 by showing that clusters do not emerge from random variation, but from three perceptual subsystems: governance, experience, and environment, with governance acting as the decisive boundary-shaping mechanism.

2.3.2. Discussion

The three perceptual segments identified in this study do not merely represent different levels of satisfaction, but rather distinct cognitive frameworks through which tourists make sense of regional linkage [12]. The "Governance-Confident" segment (C1) reflects an integrated reading of policy clarity, partnership credibility, and cultural coherence, whereas "Structure-Sensitive Skeptics" (C2) show that positive impressions of natural scenery alone are insufficient when coordination signals are weak or ambiguous. The "Balanced Moderates" (C0) occupy an intermediate position, suggesting that perceptions are not linear but threshold-based, a finding reinforced by the CART model, where decision splits emerge only when governance cues cross specific levels.

This pattern contrasts with earlier segmentation studies that emphasised experiential or motivational differences [6]. Here, the decisive boundaries are institutional rather than experiential, indicating that tourists do not simply react to what exists "on the ground" but to what appears to be strategically and collaboratively planned. This aligns with the governance perspective of the researchers [6], [10], who argue that regional tourism systems function not as clusters of attractions, but as networks of coordinators, brokers, and symbolic framings.

This study contributes to the tourism and regional governance literature by demonstrating that tourist segmentation can be meaningfully explained through institutional signalling rather than demographic or motivational differences. The findings show that perceptions of policy clarity, coordination mechanisms, and shared cultural programming function as the dominant organising forces behind segment formation. In doing so, the study extends network governance theory to the demand side of tourism, illustrating that tourists evaluate regions not only as destinations, but as systems of visible cooperation.

Building on this foundation, the results further reveal a two-stage perceptual mechanism. While affective valuation of the natural environment provides an initial layer of positivity, segmentation occurs only when governance cues are interpreted as credible or absent. This helps explain why natural attractiveness alone does not guarantee regional endorsement, an analytical gap that traditional destination image research has not adequately resolved.

To reinforce this interpretation, the correlation network confirms the existence of three stable perceptual subsystems: governance, cultural experience, and environmental context, indicating that tourist evaluations follow a structured cognitive architecture rather than reflecting random or

redundant measurement. This addresses recurring methodological criticism that perception scales in tourism research often overlap without demonstrating conceptual distinctiveness.

Taken together, these findings have direct practical implications. The hierarchy of discriminating variables shows that regional tourism strategies succeed or fail on the visibility of coordination, not merely on service enhancements. For tourists already confident in governance performance, the most effective strategy is mobilisation: involving them as advocates through co-created itineraries and multi-province cultural passes. For moderates, activation depends on making coordination tangible through shared branding, unified information systems, and synchronised transport or ticketing. For skeptics, the challenge is not additional attractions, but proof of functioning partnerships, reliable mobility, and transparent policy milestones. In short, regional branding is not simply a matter of promotion; it is a performance of coordination, and what is visibly aligned is as influential as what physically exists.

Extending beyond managerial concerns, the results also hold broader societal relevance. Perceived coordination influences trust in regional governance, willingness to revisit, and support for public investment. This supports the argument that institutional clarity operates as a public good rather than an internal administrative function. In regions where fragmented jurisdiction obscures shared heritage and infrastructure, governance itself becomes part of the tourist experience.

3. Conclusion

In conclusion, the integration of HCA, ANOVA, CART, and correlation network analysis demonstrates that perceptions of regional linkage are structured primarily by governance-based cognition rather than experiential variation alone. The resulting segmentation framework is both statistically robust and behaviourally interpretable, offering a practical foundation for regions such as the Mekong Delta, where coherent identity and visible coordination are indispensable for sustainable development.

From a theoretical standpoint, the study advances tourism segmentation literature by combining unsupervised clustering with inferential and predictive validation techniques. This triangulated approach provides a more nuanced understanding of tourist heterogeneity and offers methodological guidance for future perception-based studies [8].

Practically, the findings present destination managers and regional planners with concrete variables to monitor and enhance. Interventions that improve the visibility and quality of cultural events, demonstrate policy coherence, and facilitate interprovincial collaboration are likely to shift tourist perceptions in a positive direction. As tourism regions like the Mekong Delta strive toward greater integration, perception-based insights validated by empirical data can serve as a reliable compass for sustainable and inclusive strategy design. The results of this study contribute to the practice of tourism development in the Mekong Delta, making tourism one of the key and specific economic sectors of the region, as stated in Resolution 80/NQ-TW and Resolution 120/NQ-CP.

It is important to acknowledge several limitations. The use of non-probability sampling restricts statistical generalisation, and future research should validate the segmentation through probability-based or longitudinal sampling. Additional modelling approaches, such as latent class analysis or structural equation modelling, could test causal pathways between governance perception and behavioural outcomes such as loyalty, advocacy, or risk tolerance. Experimental designs, including A/B testing of policy-messaging formats, would determine whether governance signals can actively shift skeptic segments rather than merely classify them. Nevertheless, potential response bias and temporal limitations of data collection were acknowledged as methodological constraints.

REFERENCES

[1] Rodríguez J, Semanjski I, Gautama S, Van de Weghe N & Ochoa D, (2018). Unsupervised hierarchical clustering approach for tourism market segmentation based on crowdsourced mobile phone data. *Sensors*, *18*(9), 2972., doi: 10.3390/s18092972.

[2] VMCST, "Master plan for tourism development in the Mekong Delta region to 2030," 2016.

[3] Loi NA, Phat SN & Nguyen QN, (2023). Factors impacting destination attractiveness of the Mekong Delta, Vietnam. *Journal of Law and Sustainable Development*, *11*(11), e1502-e1502., doi: 10.55908/sdgs.v11i11.1502.

[4] Nguyen TL & Dang KT, (2024). Factors affecting brands and competitiveness of tourism destinations: an analysis of the Mekong Delta. *The Singapore Economic Review*, *69*(08), 2755-2774., doi: 10.1142/S0217590823500510.

[5] Luongo S, Sepe F & Del Gaudio G, (2023). Regional innovation systems in tourism: The role of collaboration and competition. *Journal of Open Innovation: Technology, Market, and Complexity*, *9*(4), 100148., doi: 10.1016/j.joitmc.2023.100148.

[6] Richards G, (2020). Designing creative places: The role of creative tourism. *Annals of tourism research*, *85*, 102922., doi: 10.1016/j.annals.2020.102922.

[7] Black W & Babin J, (2019). Multivariate data analysis: Its approach, evolution, and impact. In *The great facilitator: Reflections on the contributions of Joseph F. Hair, Jr. to marketing and business research* (pp. 121-130). Cham: Springer International Publishing..

[8] Everit, B & Hothorn T, (2011). *An introduction to applied multivariate analysis with R*. Springer Science & Business Media..

[9] Pike S, (2017). Destination positioning and temporality: Tracking relative strengths and weaknesses over time. *Journal of Hospitality and Tourism Management*, *31*, 126-133., doi: 10.1016/j.jhtm.2016.11.005.

[10] Vu HM, Lam TM & Prabhakaran S, (2021). Perceptions of key stakeholders towards sustainable tourism development: A case study in Mekong Delta, Vietnam. *The Journal of Asian Finance, Economics and Business (JAFEB)*, *8*(4), 717-726., doi: 10.13106/jafeb 2021.

[11] Panzera E, (2022). Cultural Heritage and Territorial Identity: The Economic Consequences of Their Synergies. In *Cultural Heritage and Territorial Identity: Synergies and Development Impact on European Regions* (pp. 145-172). Cham: Springer International Publishing, doi: 10.1007/978-3-030-94468-1_6.

[12] Nguyen PT, (2025). Segmenting perceptions of regional tourism linkage via hierarchical cluster analysis: evidence from the Mekong Delta region. *Journal of Science, Ho Chi Minh City University of Education*, *22*(9)., pp. 1731–1741.